The Kingdom of Thailand

Electricity Generating Authority of Thailand

UPPER QUAE YAI HYDROELECTRIC DEVELOPMENT PROJECT FEASIBILITY REPORT

Volume 2

(APPENDIX 1)

June 1980

Japan International Cooperation Agency

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APPENDIX 1

HYDROLOGY

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Chapter 1 Catchment Area of the Proposed Sites

Catchment Area of the Nam Chon site has been prepared by EGAT. That figure was judged to be reasonable, measuring with the topographical maps (scale 1/50,000) published by Royal Thai Survey Department. Catchment areas of other damsite were estimated based on that of the Nam Chon Site.

Catchment Area of each damsite is given below.

Proposed Damsite	Catchment Area (km^2)
No. 9A	4,524
Nam Chon	4,908
Thi Khong	5,154

Chapter 2 Hydrologic Return Period

The study of the hydrologic return period was made here according to the following two methods:

i) Three-Term Moving Average Method

The approximate trend of variation of data is indicated plotting the average values of three consecutive terms in a given time series.

ii) Spectral Analysis

Spectral analyses of random variations play the role of the dispersing prism to sunlight by mathematical means in order to estimate what kinds of harmonic waves a certain variable quantity is composed of. The distribution cycle components contained in a time series x(t) varying at random may be obtained by the following Fourier transform:

$$X(f) = \int_{-\infty}^{\infty} x(t)e^{-i2\pi ft}dt \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

where, when

$$S_X(f) = \lim_{T-\infty} [\frac{1}{T}|X(f)|^2] \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

it may be considered that $S_X(f)$ expresses the average energy during a unit length of time, that is, the power possessed by the component of frequency f. This is the power spectrum.

The changes with time in the inflows at the Nam Chon Site and Bangkok based on existing data are indicated in Fig. 2-1. Three-term moving averages are also given. It may be assumed from these moving averages that return-period components of roughly 10 years exist in these inflow data.

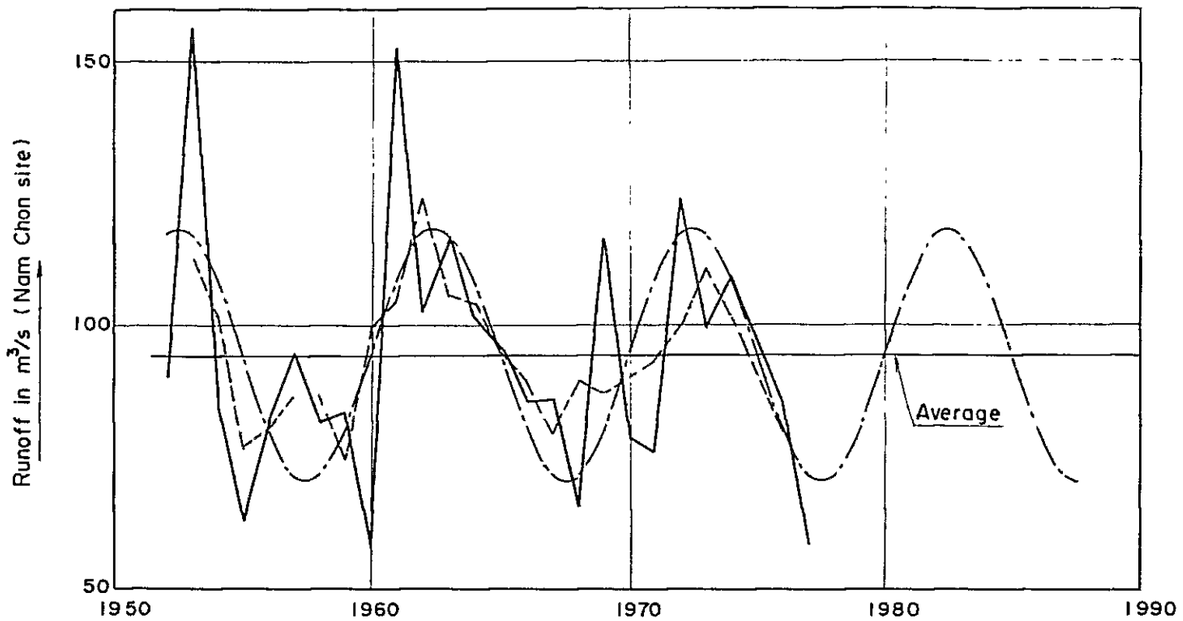
In contrast, the results of spectral analyses of damsite inflows (26 years) and rainfall in Bangkok (67 years) are shown in Fig. 2-2. Although the reliability is somewhat poor because of the slightly small number of data on damsite inflows, it may be seen from the results of the two analyses that besides two prominent peaks for one-year return periods and half-year periods, return-period components of about 4 years and about 10 years can be recognized. It is assumable that return-period

components longer than 10 years are few in number.

As a result of the above study, the 10 years will be considered as the longest return-period component for hydrologic data concerning this Project.

Further, in order to estimate the inflow at the damsite at the time of the fill-up, the moving-average waveform in Fig. 2-1 was applied to the sine wave of the 10-year return period and extended. As a result, it is anticipated that 1985 when fill-up is to be started will happen to be more or less an average year.

Fig. 2-1 Cycle of Runoff and Rainfall (3 Points Moving Average Method)



Note :

——— Annual

– – – – – 3 Points Moving Ave.

—·—·— Prominent Harmonic Wave

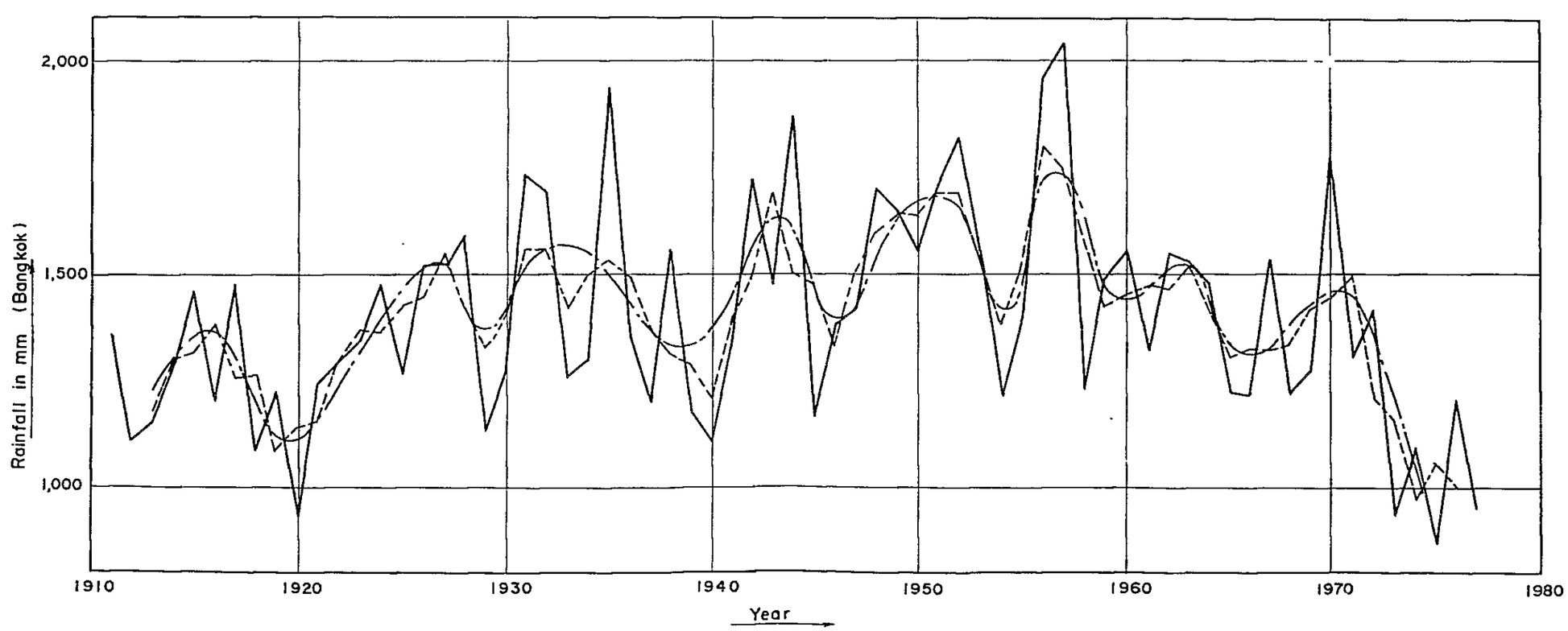
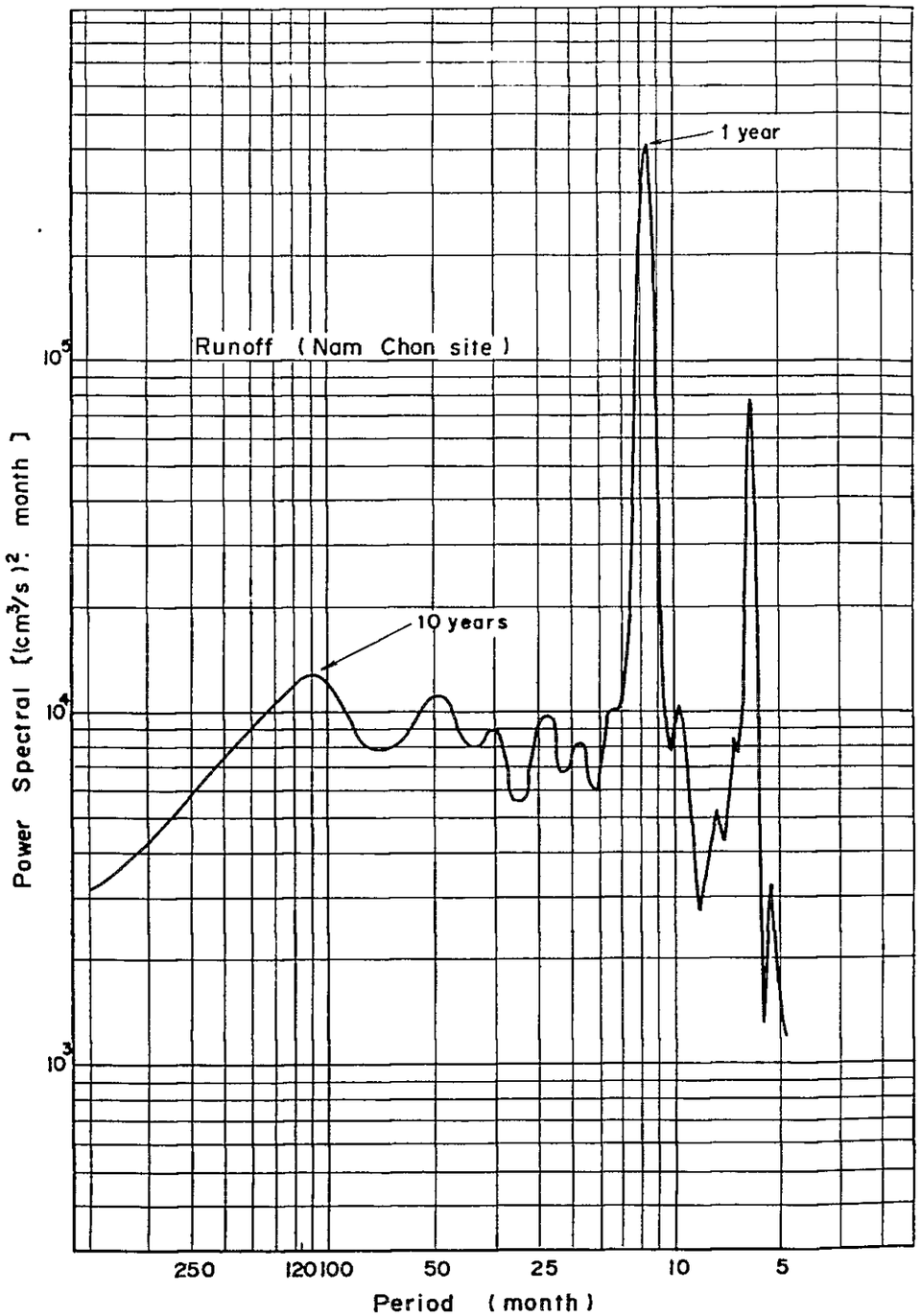
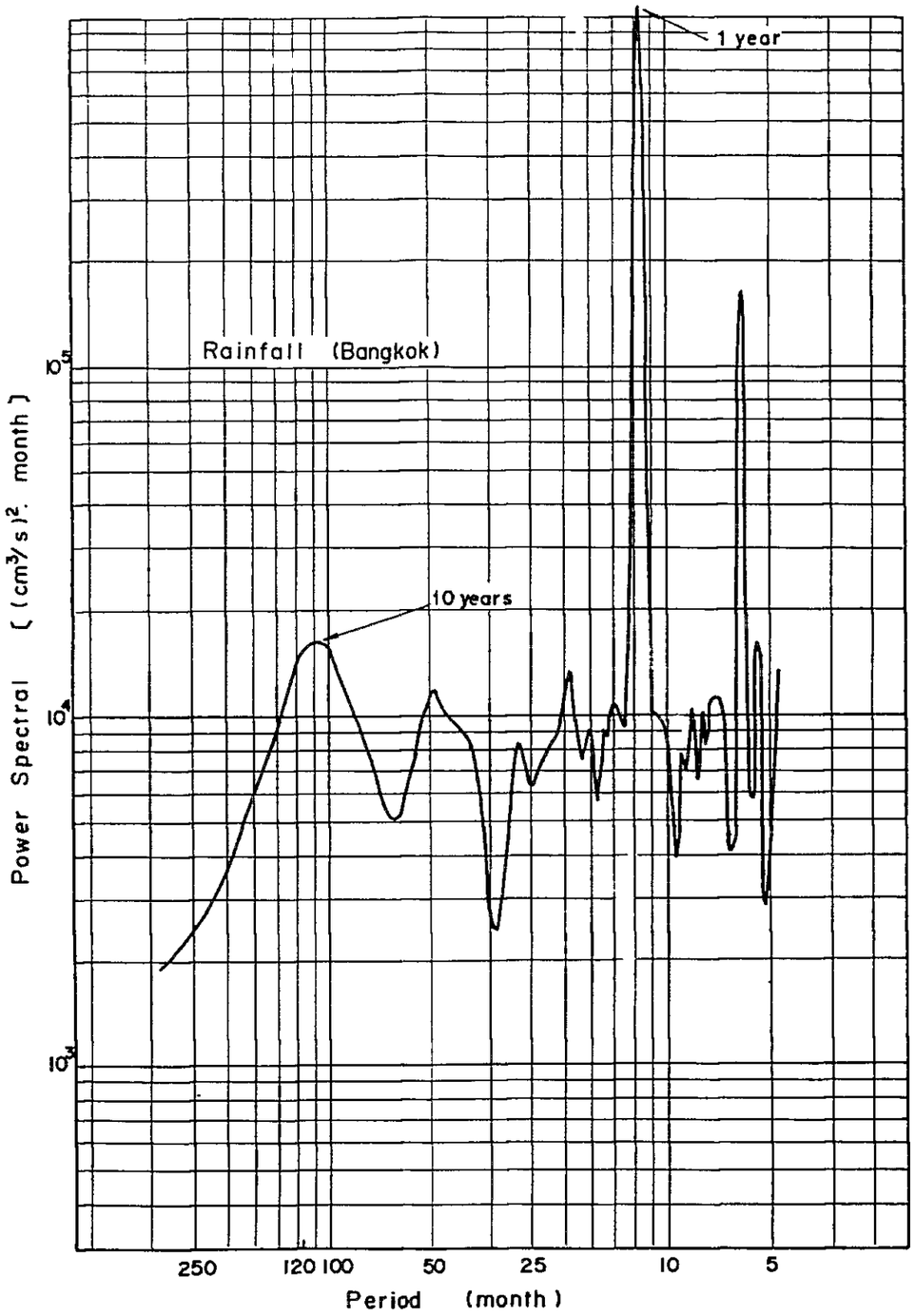


Fig. 2-2 Cycle of Runoff and Rainfall (Spectral Analysis)



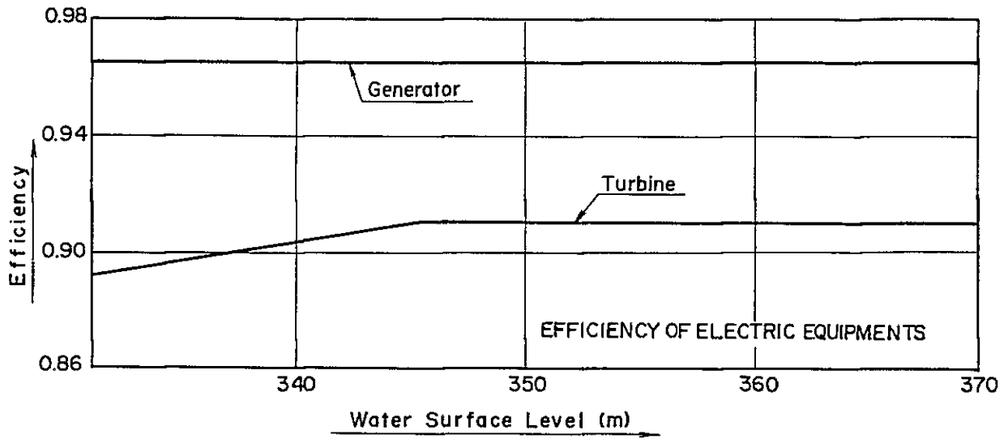


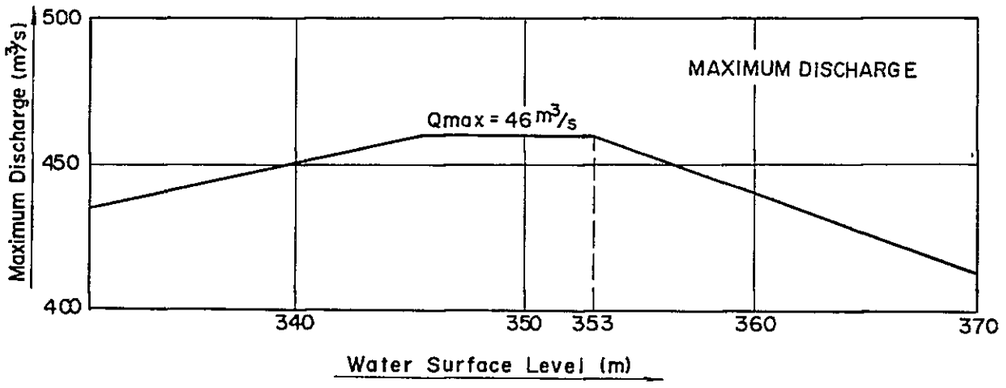
Chapter 3 Basic Data for the Power Plants

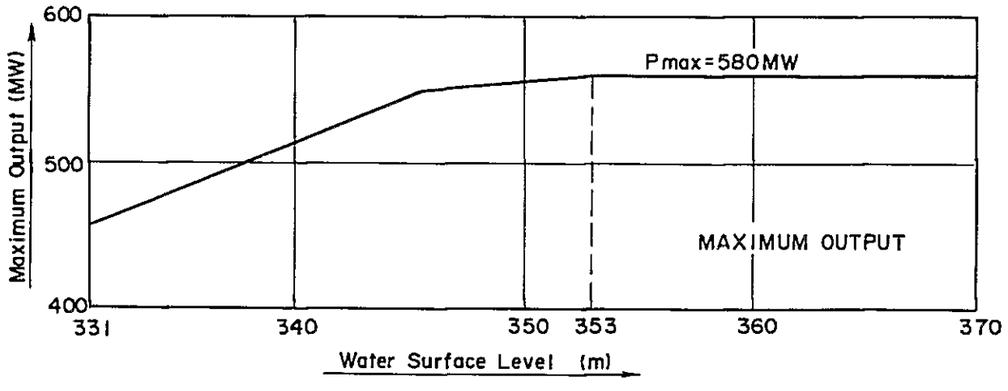
Basic Data for Nam Chon Power Plant and Thi Khong Power Plant, on which the energy calculations were based, are shown in Fig. 3-1.

Fig. 3-1 Basic Data of the Power Plants

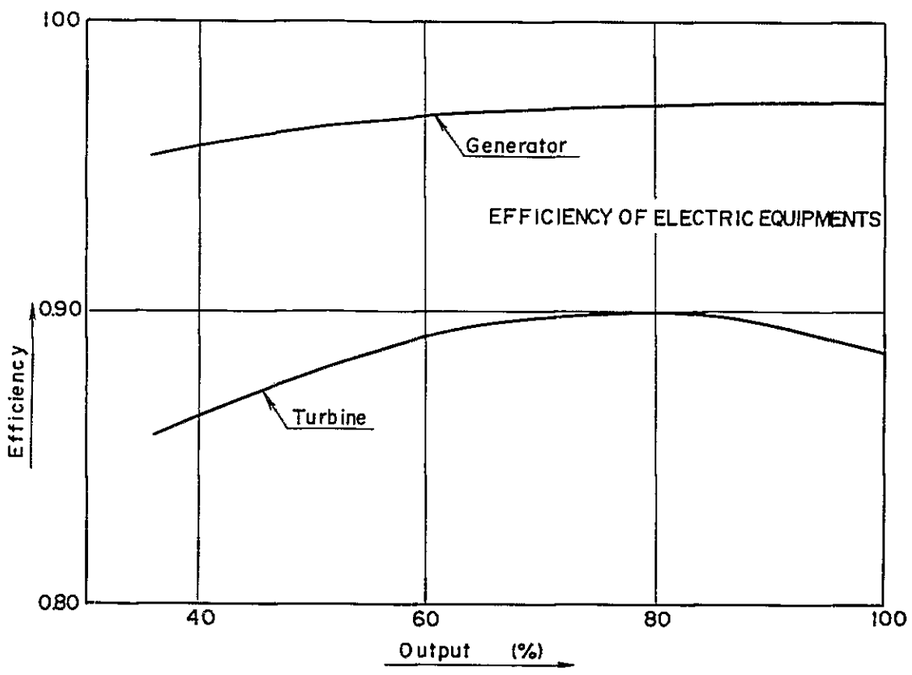
Basic Data of Nam Chon Power Plant

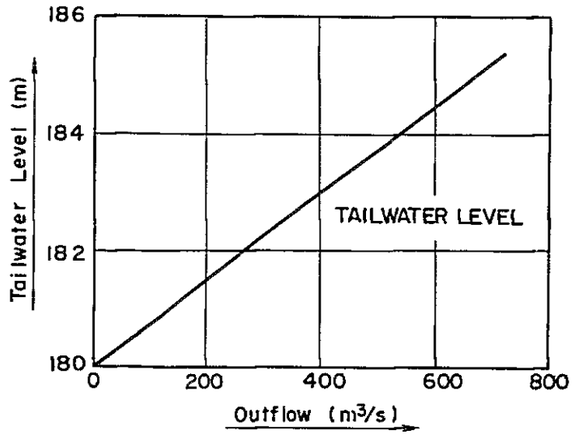






Basic Data of Thi Khong Power Plant





Chapter 4 Appropriateness of Fill-up Plan

In order to study the degree of appropriateness of the fill-up period set at two and a half years, data were made to be produced stochastically by Matalas data generation, data sequences were picked up as suited from May to October of two and a half years later, and the actual storage quantities for 100 cases were obtained.

The basic equation for the data generation mentioned is based on the primary autoregressive process equation of Markov, and simplified, it becomes the following equation for average value variance and preservation of autocorrelation coefficient lagging by 1.

$$Q_i = \bar{Q} + p(Q_{i-1} - \bar{Q}) + t_i \sigma \sqrt{1 - \rho^2} \quad \cdots\cdots\cdots\cdots\cdots\cdots \quad (1)$$

where

$\bar{Q}$: average value

ρ : autocorrelation coefficient

σ : standard deviation

t : random variable

In the above, $\bar{Q}$, ρ and σ should be determined in advance based on the original data, while t is a random variable generated inside the computer. In this equation, the second term of the right-hand side may be considered as a component obtained from autocorrelation in a determination theory manner, and the third term as a purely random component.

Actually, for monthly data, Eq. (1) was expanded and calculations were carried out by the following equation:

$$Q_{ij} = \bar{Q}_j + \rho_j \frac{\sigma_j}{\sigma_{j-1}} (Q_{i-1,\, j-1} - \bar{Q}_{j-1}) + t_i \sigma_j \sqrt{1 - \rho_j^2} \quad \cdots\cdots \quad (2)$$

Fig. 4-1 is given as the result of the study.

This figure shows the quantities that can be stored in the reservoir in two and a half years for 100 cases Thomasplotted as an expedient on normal stochastic process paper. The conditions for calculations were that discharge downstream for two and a half years was ignored with the entire quantity considered to be stored. However, evaporation was taken into account.

As a result, it is thought the probability of the storage capacity of $5,930 \times 10^6 m^3$ at HWL = 370 m being filled in two and a half years is roughly 94% with the above conditions.

Simulation of Srinagarind Reservoir during fill-up is shown in Fig. 4-2.

Fig.4-1 Relation between Fill-Up Volume 2.5yrs and Probability of Exceedence of Nam Chon Site

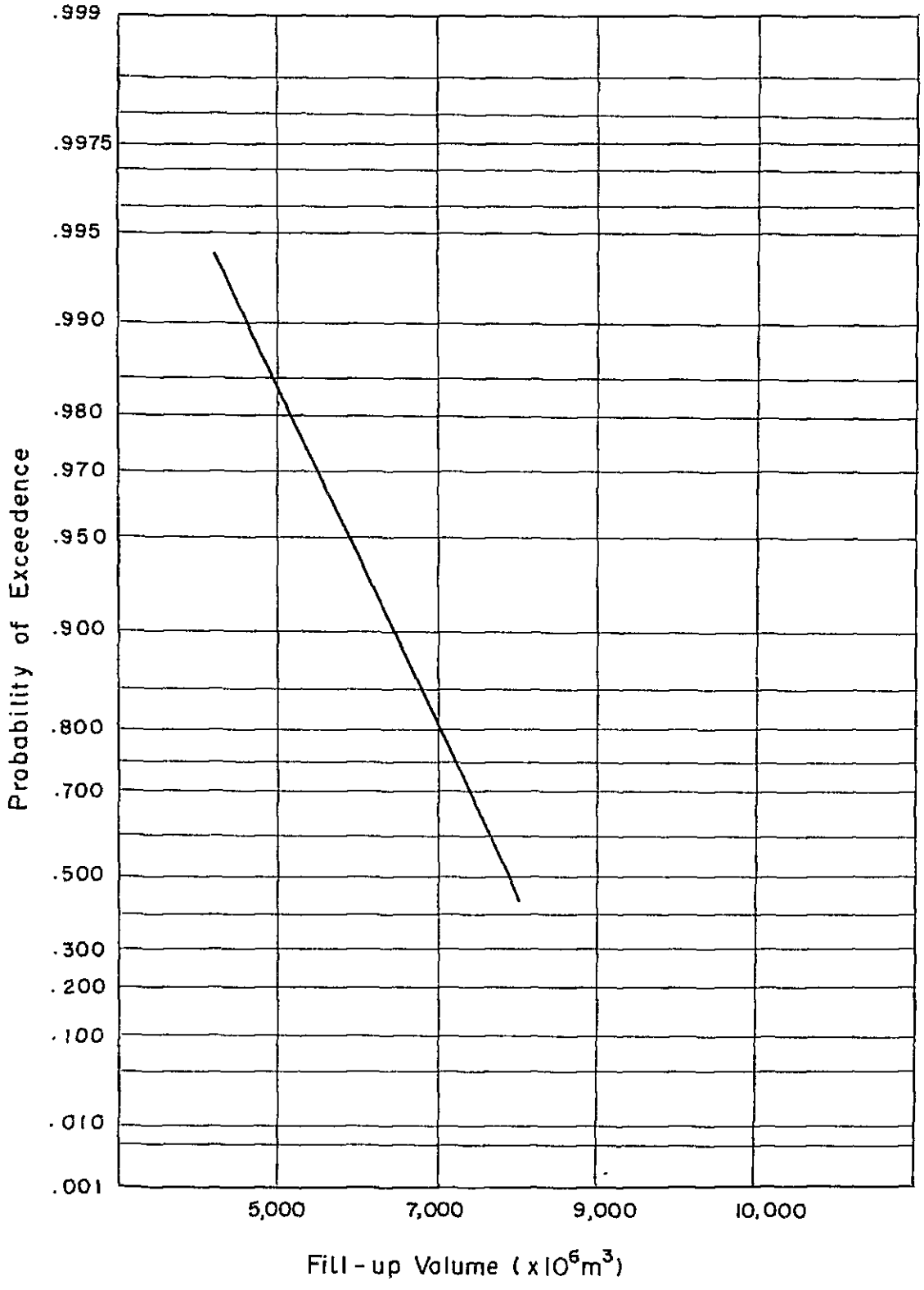
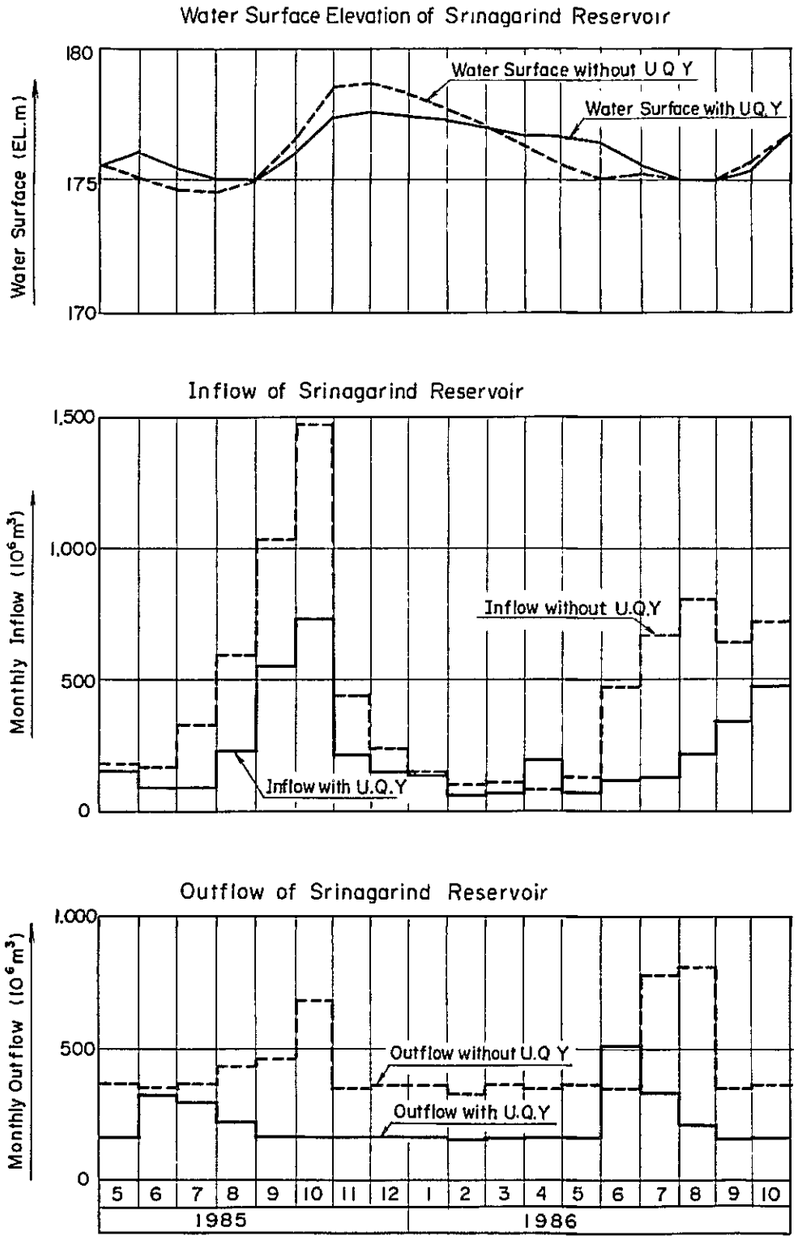
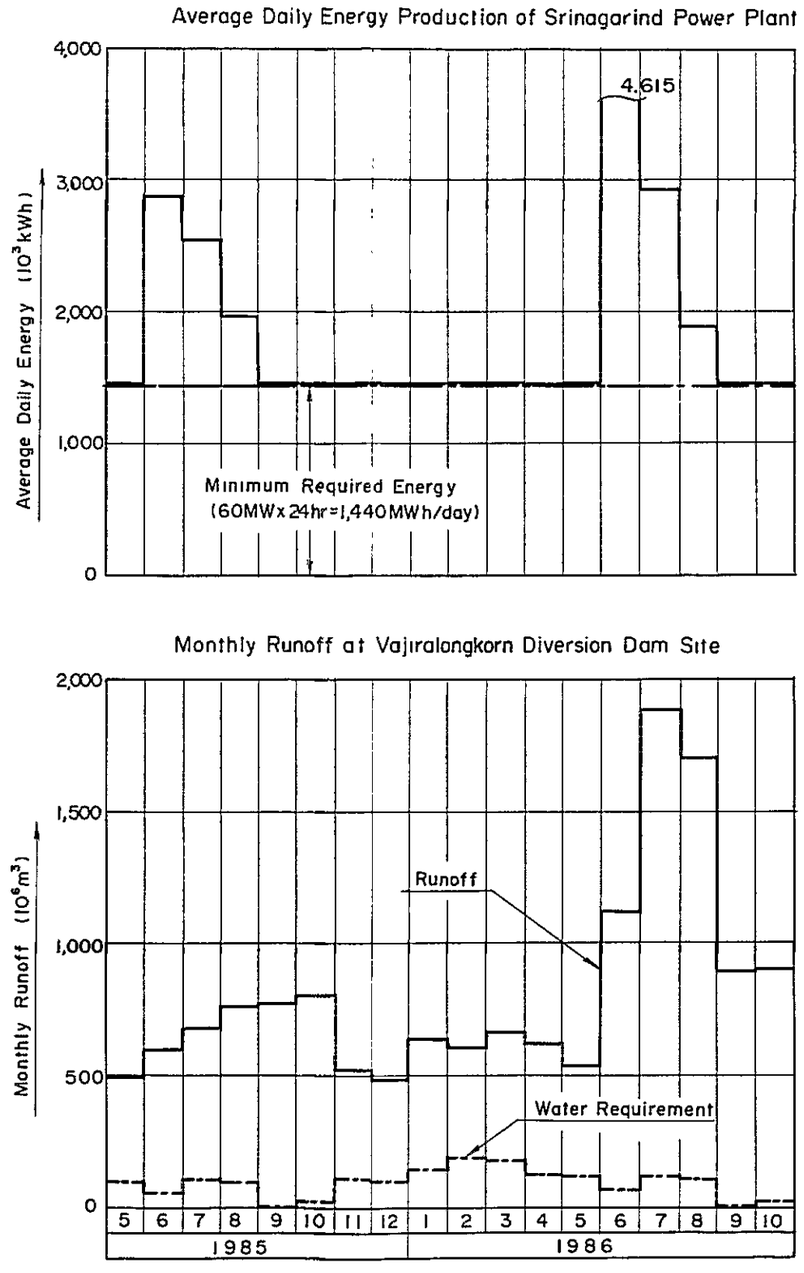


Fig. 4-2 Simulation of Srinagarind Reservoir during Fill - Up





Chapter 5 Thi Khong Power Station

(1) High Water Level of Thi Khong Pond

Calculations were made of backwater between the Thi Khong site and the Nam Chon damsite in order to determine the high water level of Thi Khong Pond.

These consisted of trial calculations varying the high water level of Thi Khong Pond so that the backwater level of the pond at the Nam Chon Power Station outlet during maximum power generation at Nam Chon will coincide with the tailwater level of Nam Chon.

The results of calculations are indicated in Table 5-1.

Based on the results, the high water level of Thi Khong Pond was set at El. 197 m taking into account an allowance.

(2) Tailwater Level of Thi Khong Power Station

The tailwater level of Thi Khong Power Station was obtained from backwater calculations for the section between Srinagarind Reservoir and the Thi Khong site during maximum power generation discharge of Thi Khong Power Station.

The results of calculations are as indicated in Table 5-2.

As can be understood from Table 5-2, the water surface gradient of this section is influenced by the rapids in the vicinity of a point 2.3 km downstream (Section No. 2) of the Thi Khong site. Consequently, a large increase in head cannot be looked forward to even if the damsite were to be moved downstream. It will be possible to increase the head if lowering of the river bed at this part can be readily done both economically and technically.

Table 5-1 THI KHONG---NAM CHON (BACK WATER) CASE-100 SEP 1979

CASE - 100

NO.	DL	L	H	A	R	N	Q	U	FR	C1	C2
6	0.0	0.0	197.000	1510.58	11.304	0.040	460.00	0.305	0.029	0	0
7	450.0	450.0	197.003	1743.70	12.941	0.040	460.00	0.264	0 023	1	4
8	690.0	1140.0	197.004	1233.45	11.657	0.040	460 00	0.373	0 035	1	4
9	430.0	1570.0	197.007	1272.20	12.351	0.040	460.00	0.362	0.033	1	3
10	465.0	2035.0	196.985	379.75	5.924	0.040	460 00	1.211	0.159	1	4
11	780.0	2815.0	197.161	408.90	5.591	0.040	460.00	1.125	0.152	1	4
12	370.0	3185.0	197.244	351.86	4.449	0.040	460.00	1.307	0.198	1	4
13	470.0	3655.0	197.384	294.97	5.545	0.040	460.00	1.559	0.212	1	4
14	640.0	4295.0	197.649	306.59	5.218	0.040	460.00	1.500	0.210	1	4
15	680.0	4975.0	197.904	376.63	5.826	0.040	460.00	1.221	0.162	1	4
16	370.0	5345.0	197.952	221.45	4.650	0.040	460.00	2.077	0.308	1	4
17	450.0	5795.0	198.383	525.61	5.142	0.040	460.00	0.875	0.123	1	4
18	700.0	6495.0	198.466	415.47	6.183	0.040	460.00	1.107	0.142	1	4
19	415.0	6910.0	198.501	230.50	5.026	0.040	460.00	1.996	0.284	1	4
20	370.0	7280.0	198.790	194.04	4.220	0.040	460.00	2.371	0.369	1	4
21	1010.0	8290.0	199.835	270.61	5.767	0.040	460.00	1.700	0.226	1	5
22	500.0	8790.0	200.170	183.92	3.864	0.040	460.00	2.501	0.406	1	5

Table 5-2 SRINAGARIND---THI KHONG (BACK WATER) CASE-100 SEP. 1979

CASE - 100

NO.	DL	L	H	A	R	N	Q	U	FR	C1	C2
1	0.0	0.0	180.000	303.47	3.912	0.040	480.00	1.582	0.255	0	0
2	615.0	615.0	180.866	168.70	2.863	0.040	480.00	2.845	0.537	1	8
3	540.0	1155.0	182.167	371.47	5.188	0.040	480.00	1.292	0.181	1	5
4	490.0	1645.0	182.343	263.94	4.143	0.040	480.00	1.819	0.285	1	5
5	650.0	2295.0	182.794	465.29	4.934	0.040	480.00	1.032	0.148	1	5
Thi Khong	660.0	2955.0	183.135	224.69	3.400	0.040	480.00	2.136	0.370	1	6

Chapter 6 Sedimentation

6-1 Geological and Topographical Features

The topographical features of Nam Chon Reservoir, with the exception of the catchment area of the tributary Mae Chan River, indicates a rugged youthful to mature topography as a whole. Consequently, the river beds of the mainstream and the various tributaries have steep gradients. The Mae Chan River catchment area indicates a hill area of gentle relief due to reasons of geology of the catchment area.

The geology of the catchment area, similarly to topography, may be divided into the mainstream area and the Mae Chan River area. The area along the mainstream which makes up the greater part of the reservoir has exposure of basement rock consisting of hard calcareous sandstone, dolomite and limestone at both left and right banks, and so-called riverbed deposits and surface deposits are small in quantity.

Considering these geological conditions and the impounded shape of the reservoir, that is, the meandering shape of the river, it is thought there will be little inflow of sediment and little set-bed reaching to a point immediately back of the dam.

6-2 Estimation of Sedimentation

In order to estimate the quantity of sediment, it is necessary to clarify the density of the sediment deposit, the trap efficiency of the reservoir, and the sediment inflow.

Accordingly, in this section, data will be arranged while furnishing brief explanations.

(1) Density of Sediment Deposit

In order to examine whether there would be a risk of the effective storage capacity in the Nam Chon Project being reduced by sedimentation during the service life of the reservoir, it is necessary to convert the sediment into volume to determine the bed height of the channel inlet. The factor assumed as the conversion factor is specific weight or unit weight.

This unit weight r differs greatly depending on grain size constituent or depth of sediment, in effect, number of years of consolidation.

In general, there is a range of $r = 0.8 - 1.0$ (t/m^3) for clay and silt to $r = 1.3 - 2.0$ for sand and gravel.

For the calculations here, it was decided to adopt $r = 1.0$ (t/m^3) to be on the conservative side

(2) Trap Efficiency of the Reservoir

The efficiency is greatly affected mainly by water discharge through the reservoir.

The examination will be made here using the envelope curve of Brune.

This Nam Chon Reservoir will have a storage capacity of $5,950 \times 10^6$ m^3 and average annual inflow of $2,975 \times 10^6$ m^3/yr so that the capacity-inflow ratio is 2, and from this, the trap efficiency may be estimated as being 98%.

However, in sediment calculations, a trap efficiency of 100% was adopted.

(3) Sediment Inflow

Sediment inflow will consist of suspended load and bed load. Ordinarily, suspended load is calculated from available sediment records, but it is extremely difficult to collect bed-load records, and only estimations can be made as percentages of suspended load.

Measurements of suspended load concerned with this Project are being carried out by EGAT at the Hard Pana, Khao Chod and Srinagarind sites.

These data were obtained during the periods below. The results for the Hard Pana and Khao Chod sites are compiled in Tables 6-1(1) to 6-1(6).

Hard Pana	April 1973 - March 1977
Khao Chod	January 1966 - December 1971
Srinagarind	April 1972 - March 1975

The data plotted on log-log paper results in Fig. 6-1. From this figure, the relation between monthly inflow Qw and suspended load Qs may be expressed by the

following equation:

$$\text{Log } Qs = 1.9516Qw - 4.3326$$

The results of substituting the inflows of Nam Chon Reservoir (for the 26-year period from 1952 to 1977) are as given in Tables 6-2 to 6-3.

Therefore, the specific suspended load (annual average suspended load per 1 km^2 for catchment area) at the Nam Chon site will be 104.6 ton/km^2/yr, and the upper limit of 209.2 ton/km^2/yr was adopted as the design value.

6-3 Conclusions

When bed load is taken to be 20% of suspended load as generally considered, the total specific sediment will be

$$209.2 \times 1.2 = 251 \text{ (ton/km}^2\text{/yr)}$$

Considering the service life considered for Nam Chon Reservoir to be 100 years, the total sediment quantity will be 123 x 10^6 m^3, which is only 6.7% of the inactive storage of the reservoir of 1,850 x 10^6 m^3

The percentage of sedimentation to dead storage (under the elevation 301.0 m of the power intake) comes to about 24%, but this figure is not significant taking the shape and the profile of the Nam Chon Reservoir into consideration.

Fig. 6 – 1 Relation between Monthly Runoff and Suspended Sediment
(Hard Pana and Khao Chod)

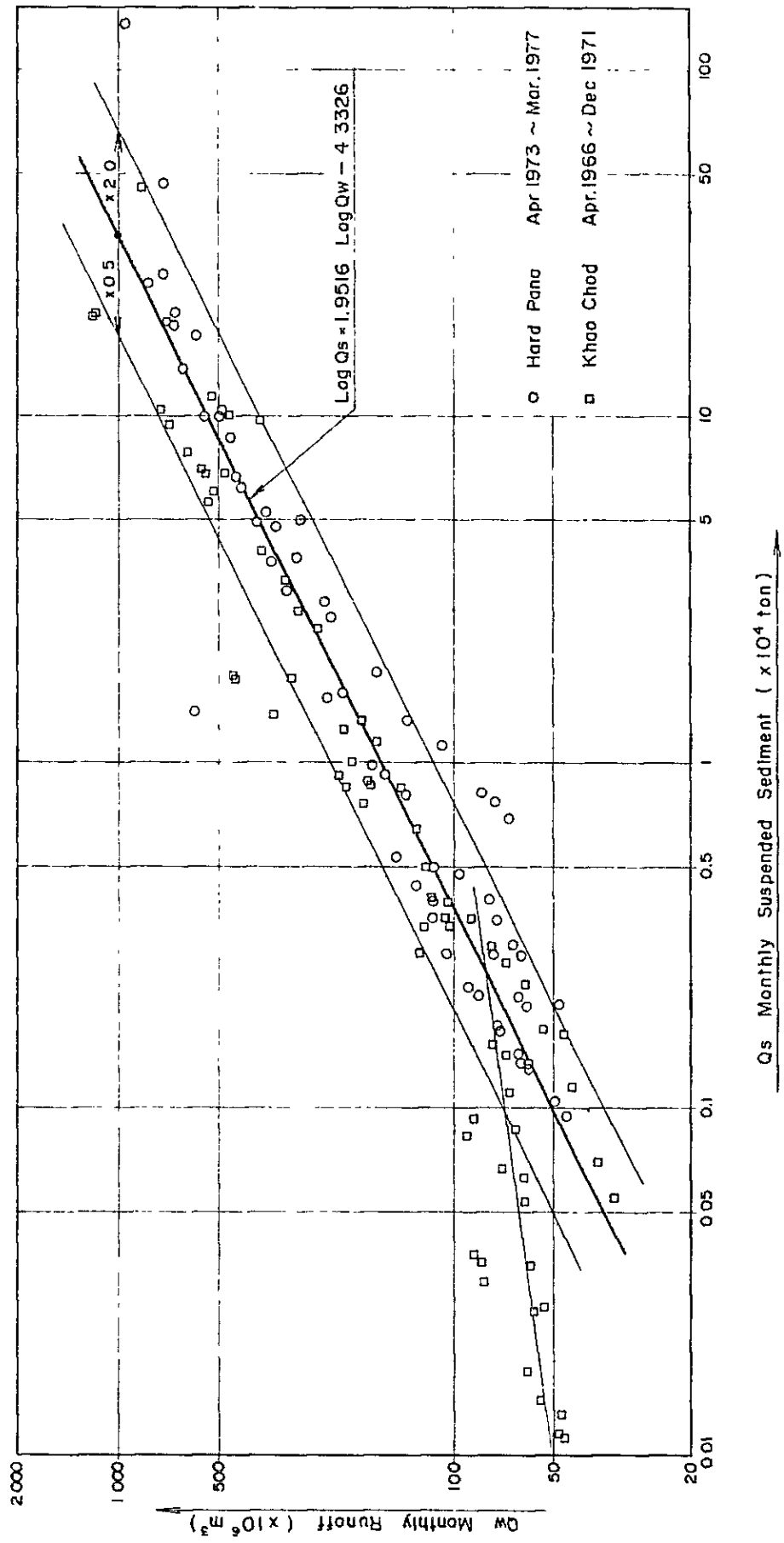


Table 6-1 (1) Runoff and Suspended Sediment

Khao Chod

	1966		1967	
	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)
JAN.	100.3×10^6	$0\ 3980 \times 10^4$	87.5×10^6	0.0940×10^4
FEB.	77.0	0.2949	56.7	0.0263
MAR.	62.3	0.2291	48.1	0.0117
APR.	46.6	0.1670	47.6	0.0132
MAY	88.6	0.3559	72.8	0.0670
JUN.	173.8	0.8686	121.0	0.3366
JUL.	372.6	9.6934	212.7	1.2549
AUG.	525.1	11.4730	746.5	10.4350
SEP.	851.0	45.6660	700.2	9.4680
OCT.	456.7	10.1096	614.7	7.8340
NOV.	177.9	0.8928	200.9	1.0094
DEC.	121.0	0.4988	124.2	0.2832

Notes: 1) Qw = Monthly Runoff measured at Khao Chod x 0.864

$$0.864 = \frac{\text{CA Nam Chon}}{\text{CA Khao Chod}} = \frac{4,908\ km^2}{5,678\ km^2}$$

2) Qs : observed at Khao Chod

Table 6-1 (2)

Khao Chod

	1968		1969	
	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)
JAN.	80.5×10^6	0.0318×10^4	70.4×10^6	0.2635×10^4
FEB.	59.9	0.0177	44.0	0.1167
MAR.	55.1	0.0145	36.9	0.0697
APR.	46.0	0.0113	32.7	0.0553
MAY	91.3	0.0832	53.7	0.1694
JUN.	82.8	0.0363	169.9	1.1656
JUL.	220.6	0.9230	369.1	4.0665
AUG.	715.9	18.6870	1141.3	19.6900
SEP.	476.9	6.8480	1160.2	19.6650
OCT.	304.3	1.7738	513.0	6.0410
NOV.	?	?	287.8	2.7020
Dec.	87.0	0.0384	142.0	0.8527

Table 6-1 (3)

Khao Chod

	1970		1971	
	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)
JAN.	106.0×10^6	0.3563×10^4	114.0×10^6	0.4075×10^4
FEB.	65.2	0.0857	68.9	0.1426
MAR.	58.6	0.0357	62.0	0.0540
APR.	53.1	0.0269	61.8	0.0626
MAY	76.9	0.1541	68.3	0.1107
JUN.	128.0	0.6439	209.6	0.8453
JUL.	317.2	3.3592		
AUG.	531.2	6.6338	442.5	1.7709
SEP.	556.2	7.0700	449.1	1.7873
OCT.	543.5	6.8040	338.3	1.3921
NOV.	252.5	2.4271	183.9	0.7604
DEC.	184.2	1.3016	102.3	0.3364

Table 6-1 (4)

Hard Pana

	1973		1974	
	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)
APR.	47.6×10^6	0.1983×10^4	66.7×10^6	0.6915×10^4
MAY	75.3	0.3531	109.5	1.1086
JUN.	288.6	4.9919	241.0	2.9090
JUL.	427.0	6.2398	295.6	3.8599
AUG.	680.9	19.9303	953.2	133.2670
SEP.	819.4	24.3880	587.8	13.9060
OCT.	550.7	9.8697	736.3	47.2590
NOV.	216.4	1.6159	359.8	5.2845
DEC.	139.6	0.8087	180.1	1.8587
JAN.	96.8	0.4841	134.9	1.3336
FEB.	62.7	0.2836	83.3	0.8259
MAR.	66.6	0.2976	75.6	0.7674

Notes: 1) Qw = Monthly Runoff measured at Hard Pana x 0.870

$$0.870 = \frac{\text{CA Nam Chon}}{\text{CA Hard Pana}} = \frac{4,908\ km^2}{5,644\ km^2}$$

2) Qs : observed at Khao Chod

Table 6-1 (5)

Hard Pana

	1975		1976	
	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)
APR.	61.3×10^6	0.2007×10^4	49.9×10^6	0.1040×10^4
MAR.	79.0	0.4159	114.2	0.3979
JUN.	162.4	0.9231	130.4	0.4428
JUL.	383.5	4.9406	311.6	3.1366
AUG.	583.8	17.0642	491.6	9.9423
SEP.	639.9	13.7410	715.7	25.7280
OCT.	681.2	18.0832	440.6	6.6869
NOV.	347.6	3.8238	332.6	4.8127
DEC.	173.6	0 9816	148.4	0 5409
JAN.	113.9	0.4981	103.6	0.2814
FEB.	77.2	0.2858	64.2	0 1435
MAR.	64.3	0 2112	63.3	0.1364

Tabel 6-1 (6)

Hard Pana

	1977	
	Qw Monthly Runoff (m^3)	Qs Monthly Suspended Sediment (ton)
APR.	60.2×10^6	0.1299×10^4
MAY	74.7	0.1748
JUN.	83.9	0.2107
JUL.	231.7	2.6260
AUG.	453.7	8.6008
SEP.	489.4	10.2024
OCT.	233.8	1.5508
NOV.	116.3	0.3546
DEC.	91.0	0.2253
JAN.	74.3	0.1684
FEB.	60.4	0.1332
MAR.	45.5	0.0952

Table 6-2 Runoff & Suspended Sediment at Nam Chon (Calculated)

C.A. = 4,908 km^2

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total (x 10^4 ton)	Specific S. (ton/km^2)
1952	100.12	78.99	71.57	46.97	56.84	118.07	259.46	464.92	315.45	820.66	388.33	147.82		
	0.37	0.23	0.19	0.085	0.12	0.51	2.39	7.47	3.50	22.63	5.25	0.80	43.55	88.7
1953	170.27	98.80	86.19	61.15	106.36	199.35	546.63	1464.31	776.59	622.14	590.22	270.17		
	1.05	0.36	0.28	0.14	0 42	1.43	10.24	70 06	20.32	13.18	11.89	2.59	131.96	268.9
1954	77.49	50.30	43.20	67.00	137 24	207.02	285.20	373.93	549.22	570.82	219.15	135.69		
	0.23	0.10	0.07	0.17	0.69	1.54	2.88	4.88	10.33	11.14	1.72	0.67	34.42	70.1
1955	77.67	47.08	38.33	50.62	65.38	103.50	206.00	191.91	512.39	349.13	263.40	119.59		
	0.23	0.09	0.06	0.10	0.16	0.40	1.52	1.33	9.03	4.27	2.46	0.53	20.18	41.1
1956	102.77	55.25	43.74	51.68	159.95	146.63	244.06	393.00	558.29	521.14	226.10	139.33		
	0.39	0.12	0.07	0.10	0.93	0.79	2.12	5.38	10.67	9.33	1.83	0.71	32.44	66.1
1957	82.84	47.71	39.27	39.04	32.27	122.29	235.67	542.70	654.89	823.98	228.77	120.98		
	0.26	0.09	0.06	0.06	0.04	0.55	1.98	10.10	14.57	22.81	1.87	0.54	52.93	107.8
1958	74.67	44.01	37.31	40.25	57.45	125.92	423.86	329.26	714.12	450.05	198.03	110.86		
	0.21	0.07	0.05	0.06	0.13	0.58	6.23	3.81	17.25	7.01	1.41	0.45	37.26	75.9
1959	75.50	47.58	33.72	36.78	60.61	107.93	168.55	355.72	513.99	901.74	213.40	115.81		
	0.21	0.09	0.04	0.05	0.14	0.43	1.03	4.43	9.08	27.20	1.63	0.50	44.83	91.3
1960	71.73	43.18	35.86	30.56	53.06	59.43	74.86	360.70	278.61	511.28	171.28	139.06		
	0.19	0.07	0.05	0.04	0.11	0.13	0.21	4.55	2.75	8.99	1.06	0.71	19.57	39.9
1961	113.83	66.24	57.13	29.55	94.23	187.66	697.16	1216.13	1210.52	661.83	315.29	166.28		
	0.48	0.17	0.12	0.03	0.33	1.27	16.46	48.76	48.22	14.87	3.50	1.00	135.31	275.7
1962	78.66	43.52	38.54	49.22	70.31	129.96	324.81	547.68	1000.75	590.69	213.40	121.97		
	0.23	0.07	0.06	0.09	0.19	0.62	3.71	10.28	33.33	11.91	1.63	0.55	62.67	127.7
1963	108.07	62.77	48.53	27.11	25.18	72.63	392.14	493.07	755.78	1128.41	403.73	173.83		
	0.43	0.15	0.09	0.03	0.03	0.20	5.36	8.37	19.27	42.13	5.67	1.09	82.82	168.7
1964	109.68	68.03	74.25	48.52	129.13	122.29	247.56	365.66	630.87	900.08	330.66	178.78		
	0.45	0.18	0.21	0.09	0.61	0.55	2.18	4.67	13.54	27.10	3.84	1.16	54.58	111.2
1965	92.03	69.16	56.11	43.57	73.29	345.82	542.08	591.39	450.00	445.93	192.14	117.05		
	0.32	0.18	0.12	0.07	0.20	4.19	10.07	11.94	7.01	6.88	1.33	0.51	42.82	87.2
1966	80.24	50.90	43.10	41.94	80.46	157.62	337.91	467.41	756.94	407.79	163.17	110.91		
	0.24	0.10	0.07	0.07	0.24	0.90	4.01	7.54	19.33	5.78	0.97	0.46	39.71	80.9

Table 6-2 (Cont'd)

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total (x 10^4 ton)	Specific S. (ton/km^2)
1967	73.87	53.85	49.60	42.87	66.13	109.85	193.01	665.31		548.46	184.06	113.86		
	0.21	0.11	0.09	0.07	0.17	0.45	1.34	15.02	13.22	10.31	1.22	0.48	42.69	87.0
1968	64.55	39.58	33.24	41.47	82.90	75.27	200.32	636.68	424.62	271.86	120 42	79.76		
	0.16	0.06	0.04	0.07	0.26	0.21	1.44	13.79	6.25	2.62	0.53	0.24	25.67	52.3
1969	97.17	58.71	52.74	29.34	48.61	154.33	335.47	1015.86	1033.87	457.85	263.63	130.06		
	0.35	0.13	0.11	0.03	0.09	0.87	3.95	34.32	35.52	7.25	2.47	0.62	85.71	174.6
1970	91.36	58.86	54.75	45.96	88.04	103.89	264.12	472.60	508.42	410.22	232.71	154.81		
	0.31	0.13	0.11	0.08	0.29	0.40	2.48	7.08	8.89	5.85	1.93	0.87	28.42	57.9
1971	64.20	40.34	30.27	38.21	52.58	203.29	557.59	443.81	429.49	287.87	152.90	91.60		
	0.16	0.06	0.04	0.06	0.11	1.49	10.64	6.82	6.40	2.93	0.85	0.31	29.87	60.9
1972	122.94	83.37	85.25	57.67	57.72	89.22	635.85	726.89	956.50	657.33	274.75	183.68		
	0.56	0.26	0.27	0.13	0.13	0.30	13.75	17.86	30.51	14.68	2.67	1.22	82.34	167.8
1973	89.38	56.66	60.32	43.13	68.73	260.34	388.85	609.34	733.64	494.19	199.51	128.62		
	0.30	0.12	0.14	0.07	0.18	2.41	5.27	12.66	18.18	8.41	1.43	0.61	49.78	101.4
1974	124.44	75.26	68.30	60.24	100.01	220.11	269.02	854.03	527.01	659.72	332.11	166.17		
	0.57	0.21	0.18	0.14	0.37	1.73	2.57	24.46	9.53	14.78	3.87	1.00	59.41	121.0
1975	104.94	69.78	58.15	55.55	88.52	148.39	349.72	522.98	573.43	609.34	320.16	159.98		
	0.41	0.18	0.13	0.12	0.29	0.80	4.28	9.39	11.24	12.66	3.60	0.93	44.03	89.7
1976	95.54	58.21	57.16	45.00	104.19	119.05	283.70	441.43	640.77	393.43	305.83	136.79		
	0.34	0.13	0.12	0.08	0.40	0.52	2.85	6.75	13.96	5.39	3.30	0.69	34.53	70.4
1977	68.33	54.78	41.17	54.38	68.22	76.67	211.54	405.43	438.77	209.42	107.28	83.94		
	0.18	0.11	0.07	0.11	0.18	0.22	1.61	5.71	6.67	1.57	0.43	0.05	16.91	34.5
													Total 2718.7	

Notes : Top values show monthly average runoff at Nam Chon. (x 10^6 m^3)

Bottom values show calculated monthly suspended sediment. (x 10^4 ton)

Table 6-3 Estimated Annual Specific Sediment at Nam Chon

C.A. = 4908 km^2

Year	Annual Suspended Sediment (ton)	Annual Specific Sediment (ton/km^2)
1952	43.55×10^4	88.7
53	131.96	268.9
54	34.42	70.1
55	20.18	41.1
56	32.44	66.1
57	52.93	107.8
58	37.26	75.9
59	44.83	91.3
60	19.57	39.9
61	135.31	275.7
62	62.67	127.7
63	82.82	168.7
64	54.58	111.2
65	42.82	87.2
66	39.71	80.9
67	42.69	87.0
68	25.67	52.3
69	85.71	174.6
70	28.42	57.9
71	29.87	60.9
72	82.34	167.8
73	49.78	101.4
74	59.41	121.0
75	44.03	89.7
76	34.53	70.4
77	16.91	34.5
Total (26 yrs)		2,718.7

Average annual specific sediment = $\frac{2718.7}{26}$ = 104.6 (ton/km^2 yr)

Chapter 7 Flood Flow

The purpose of this study is to determine the design flood for spillway structure and river diversion during the construction.

In this chapter, the procedure in estimation of design flood for Upper Quae Yai Project is explained and the data concerning the hydrological and meteorological conditions are presented for the further reference.

7-1 PMF (Probable Maximum Flood) at Nam Chon Site

- The daily runoff at Hard Pana site and the average precipitation data over the catchment area by the Thieseen Method are given in Table 7-1 and Fig. 7-1 in time series. (See also Table 8-1)

  In this case, the weighting factors for each catchment area for the Thieseen Method are as follows:

Umphang	0.712
Hard Pana	0.288
Total	1.000

  However, for the lack of the precipitation data at Umphang for 1974 and 1975, the average precipitation for these 2 years was not considered.

- The hydrographs prepared were examined and 9 storms, having isolated peaks with distinct relationship between rainfall and discharge, were selected and used as the data for preparing the Unit Hydrograph. (See Fig. 7-2)

  Furthermore, the result of the study on the characteristics of the recession curve was given in Figs. 7-3 and 7-4 for reference.

- Synthetic Unit Hydrograph at Nam Chon site was derived as shown in Figs. 7-5 to 7-8.

- Meteorological Data (Temperature, Dew Point, Upper Wind Speed) for the estimation of PMP (Probable Maximum Precipitation) were also presented in Supplement.

- The procedure and the result of Depth - Area - Duration (DAD) Analysis to make clear the rainfall pattern and character between Hard Pana site and Srinagarind (correctly Kang Rieng) site in major storms which there were relatively abundant data were shown in Table 7-2 and Fig. 7-9.
- Basing on the above-mentioned examinations, PMF for the Nam Chon Project was determined as explained in Chapter 3 of Main Report.

7-2 PMF at Thi Khong Site

Relations between Nam Chon site and Thi Khong site is shown below.

Project Site	Location	Catchment Area (km^2)	PMF (m^3/s)
Nam Chon	141 km U/S from Srinagarind	4,908	5,900
Thi Khong	8 km D/S from Nam Chon	5,154	Q

Maximum spilling discharge through spillway from the Nam Chon Reservoir during the flood time will be 2,500 m^3/s as shown in Chapter 7 of Main Report.

Considering the converted PMF of the remaining catchment area of 246 km^2 in addition to the spilled discharge, the design discharge for Thi Khong Project Q is as follows.

$$Q = 2,500 + 5,900 \times (\frac{5,154}{4,908} - 1)$$
$$= 2,500 + 295$$
$$= 2,800 \ (m^3/s)$$

7-3 Probable Flood by Frequency Analysis

(1) Collection of Annual Maximum Flood Data

Since flood records at Hard Pana Gaging Station are available for only 9 years from 1970 to 1978, conversion of the annual maximum flood peak values of 1952 - 1969 from records at Kang Rieng Gaging Station to the Hard Pana site is required.

Firstly, results of examination on the correlation of daily specific runoff between Kang Rieng (Srinagarind) site and Hard Pana site were shown in Fig. 7-11

and Table 7-3.

On the other hand, the seasonal specific runoff ratios of the various gaging stations to Hard Pana Gaging Station as stated in Chapter 3 of Main Report was also indicated in Fig. 7-12 for August - October.

Comparison computations to induce the design discharge for diversion were made as shown in Figs. 7-13 & 7-14 and Tables 7-4 & 7-5.

Judging from the above, it can be said in the safe side that a seasonal specific runoff ratio was adopted in conversion of runoff from Kang Rieng site to Hard Pana site.

(2) Floods at Various Return Periods

The data used in Frequency Analysis was presented in Table 7-6 and the result obtained by Gumbel Method and Log-Normal Method in Fig. 7-14.

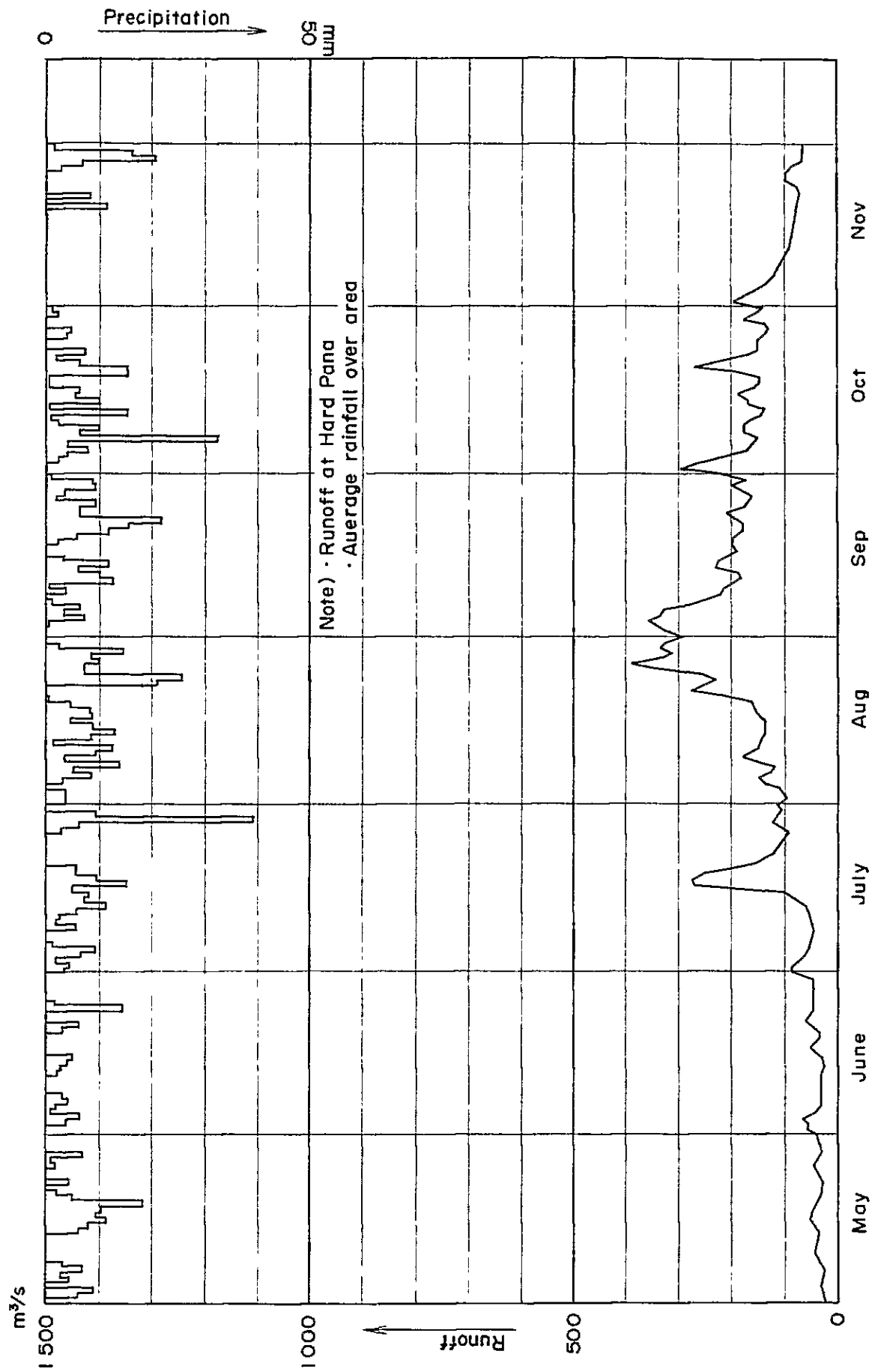


Fig. 7-1(1) Precipitation and Runoff (1970)

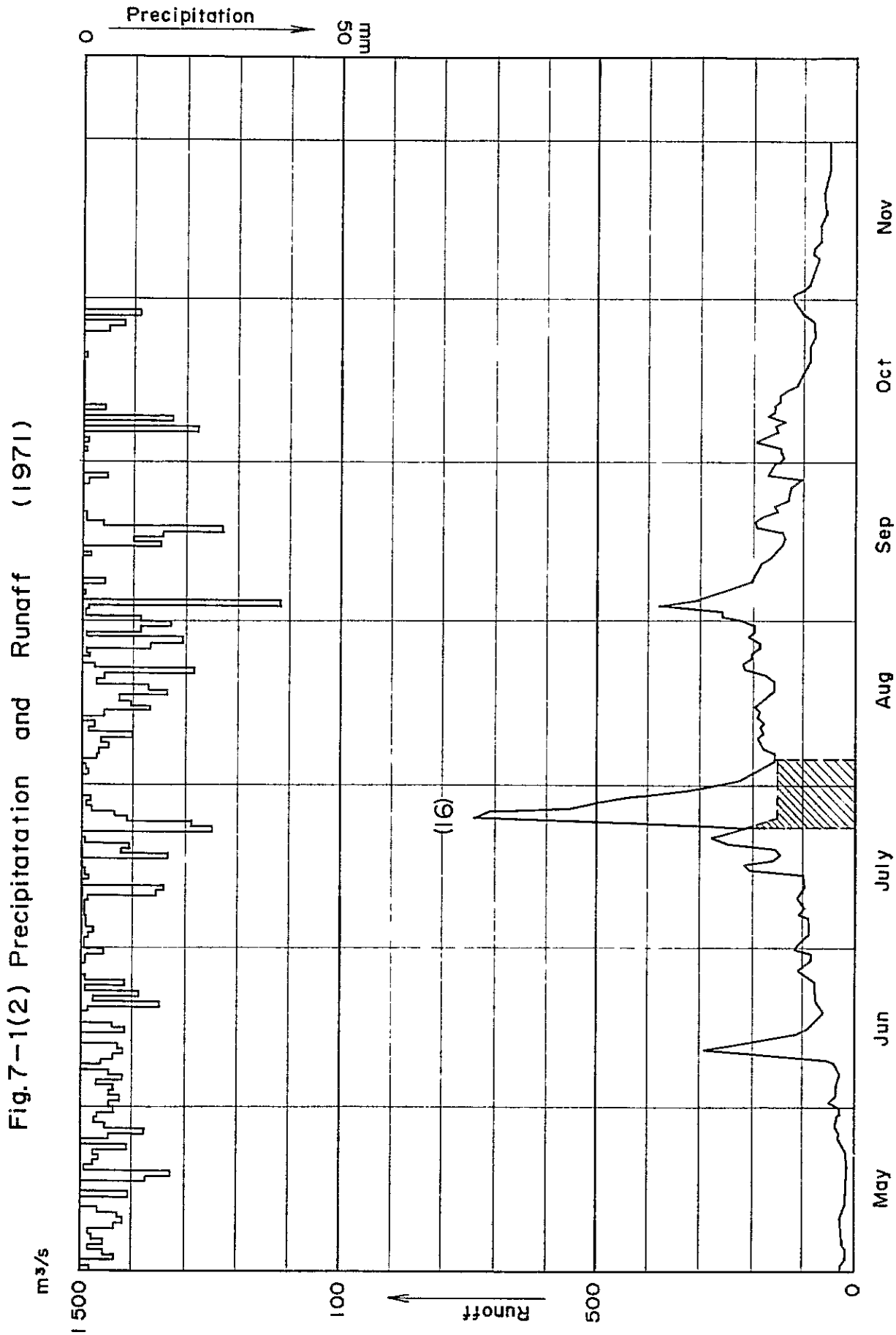


Fig. 7-1(2) Precipitation and Runoff (1971)

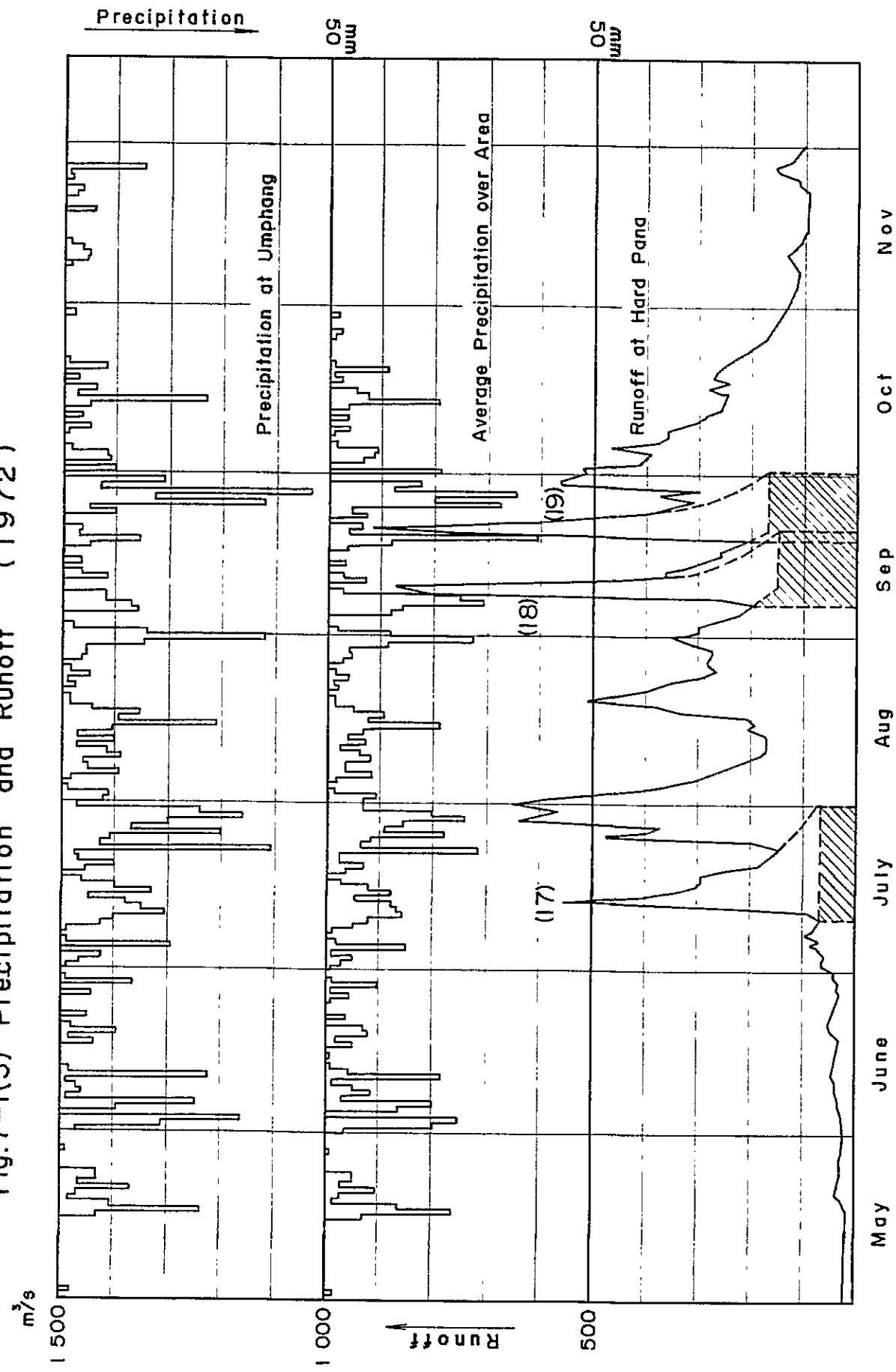


Fig.7-1(3) Precipitation and Runoff (1972)

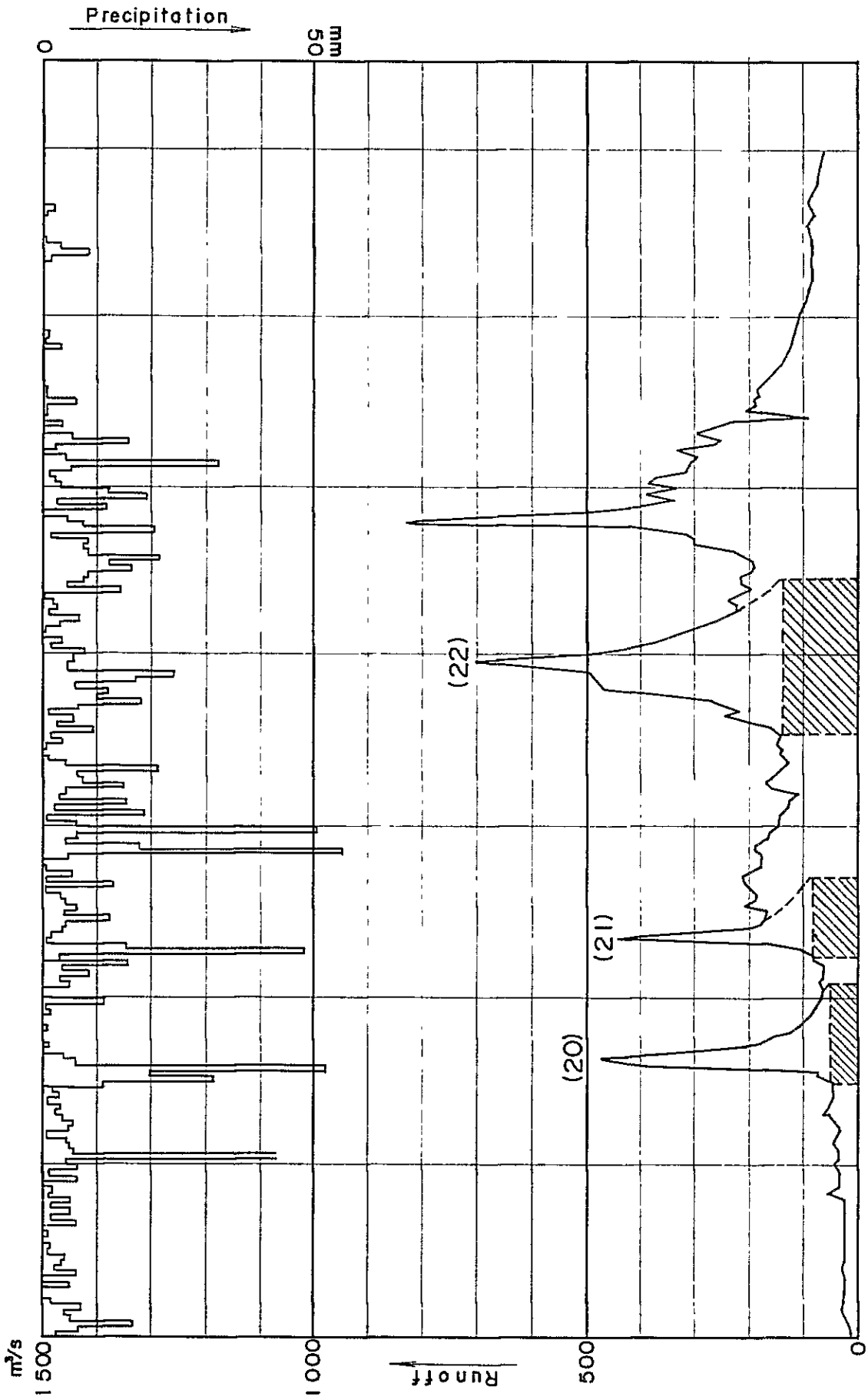


Fig. 7-1(4) Precipitation and Runoff (1973)

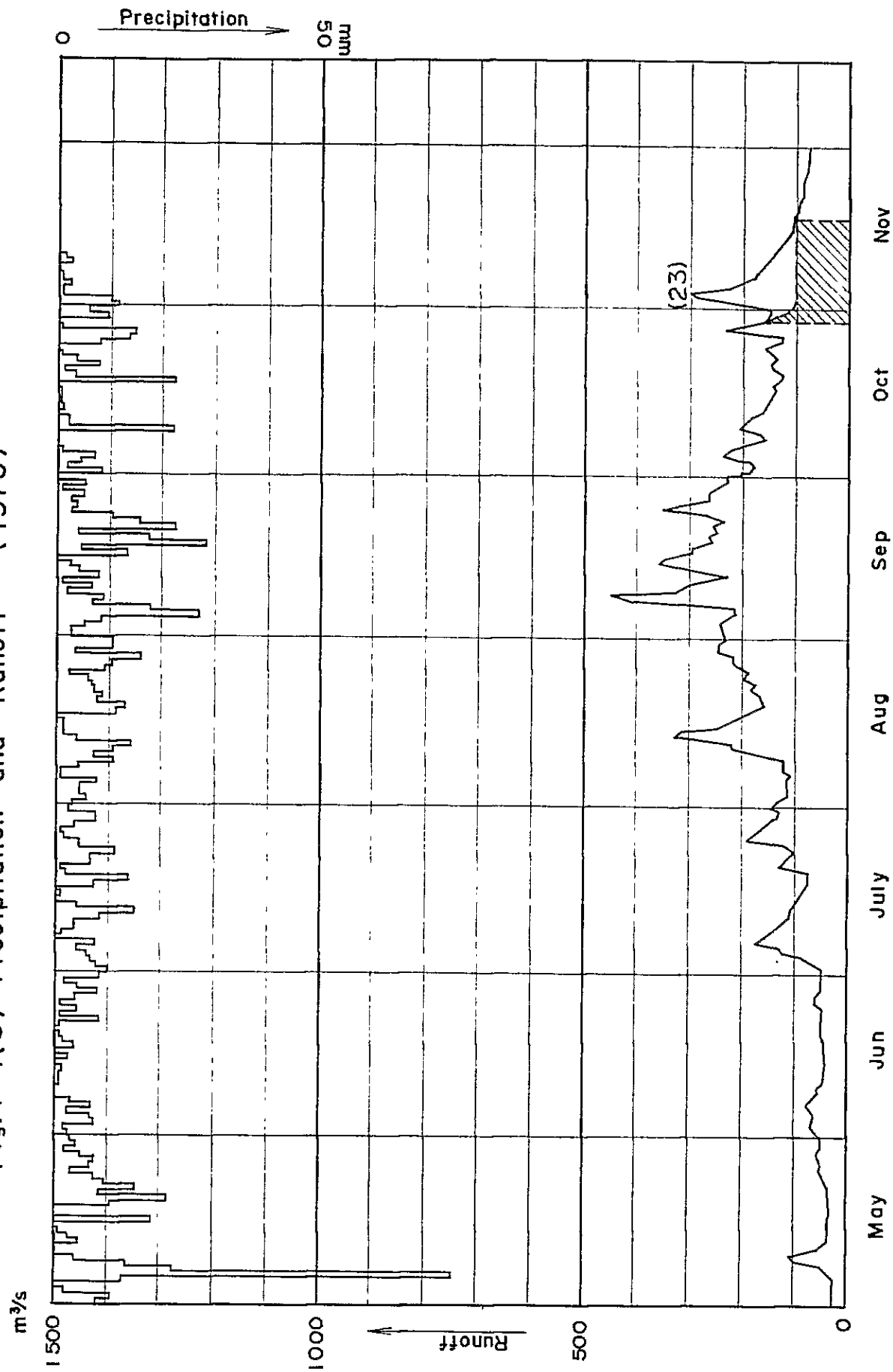


Fig. 7-1(5) Precipitation and Runoff (1976)

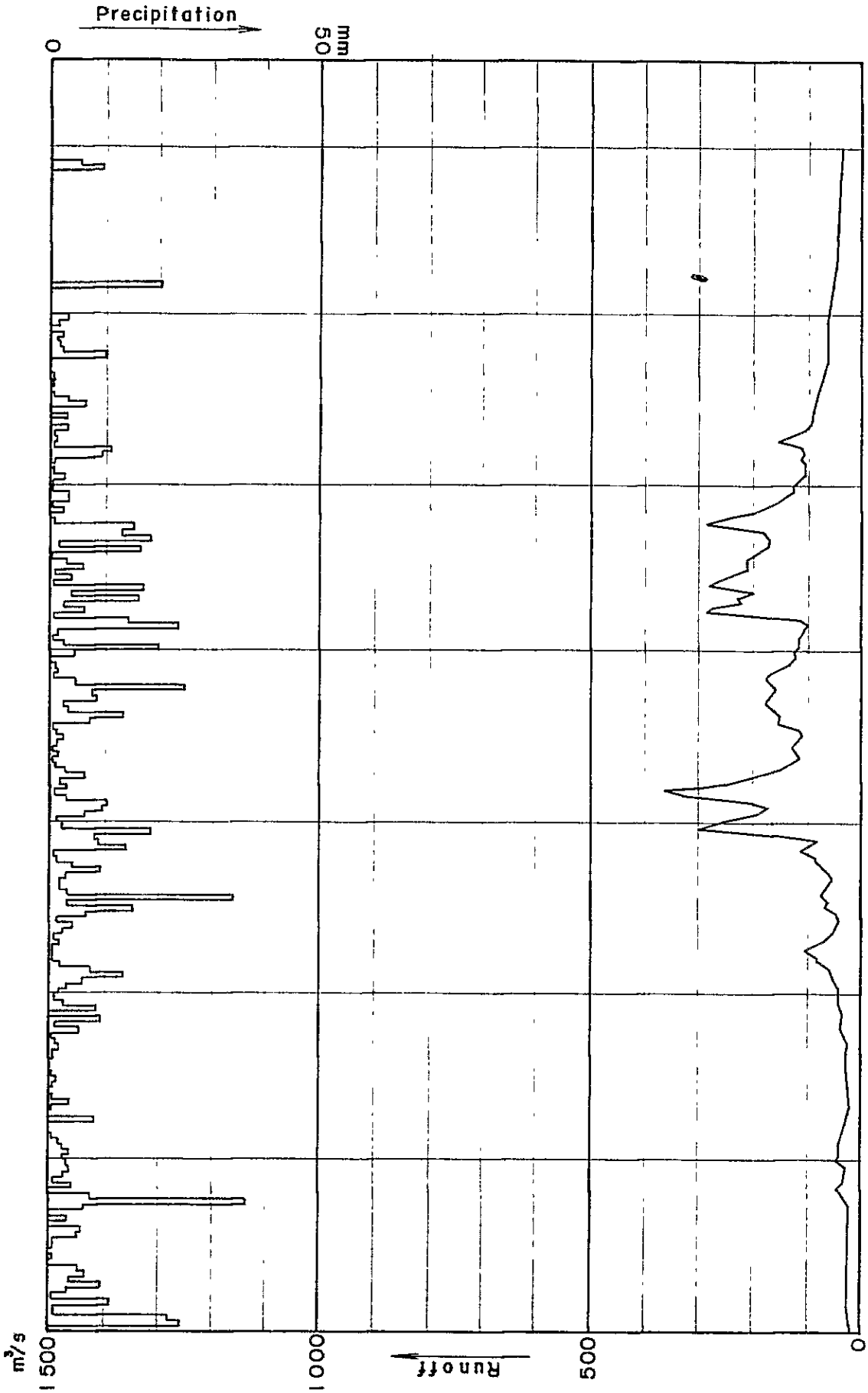


Fig. 7-1(6) Precipitation and Runoff (1977)

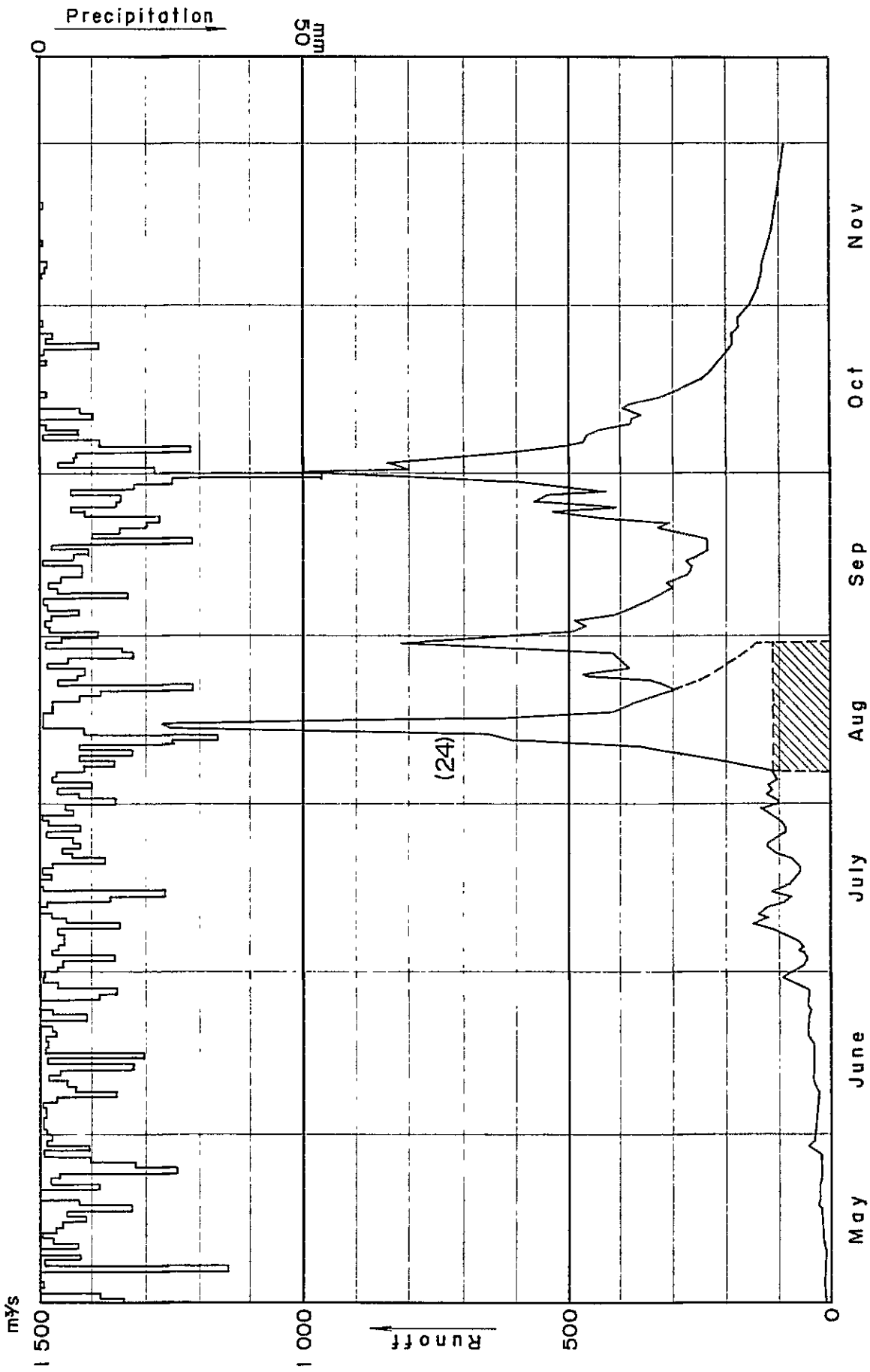
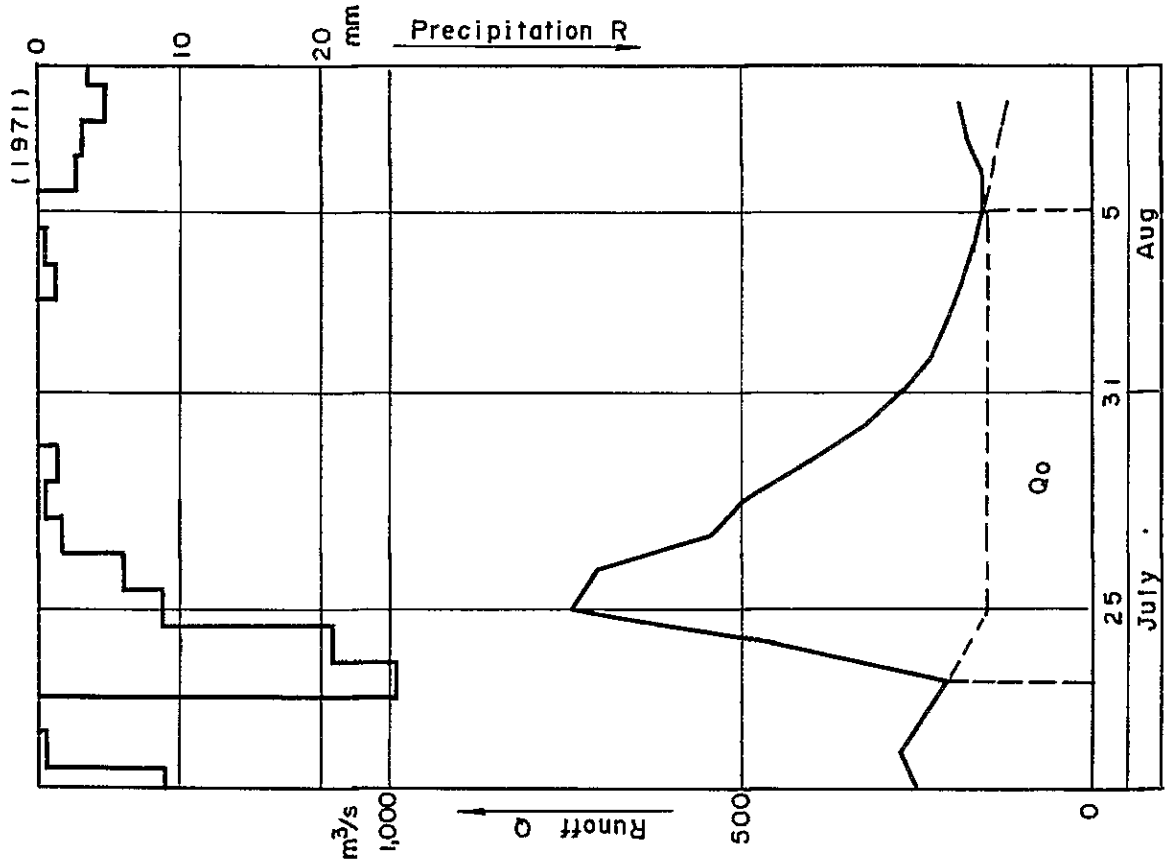


Fig. 7-1(7) Precipitation and Runoff (1978)

Date	Q	Qo	Q - Qo	R	Re	Re'
7. 23	205	205	0	25.7	29.7	16.9
24	439	175	264	21.1	24.4	13.8
25	737	150	587	8.9	10.3	5.8
26	705	〃	555	6.4	7.0	4.2
27	533	〃	383	2.0	2.3	1.3
28	494	〃	344	0.7	0.8	0.5
29	403	〃	253	1.7	2.0	1.1
30	321	〃	171			
31	266	〃	116			
8. 1	227	〃	77			
2	201	〃	51			
3	181	〃	31			
4	164	〃	14			
5	152	〃	2			
Total	5,028.0	2,180.0	2,848.0	66.5	76.5	43.6

Fig. 7-2 (1)



Date	Q	Qo	Q - Qo	R	Re	Re'
7 10	694	694	0	73	65	42
11	924	"	23	13.8	12.4	8.0
12	242	"	172.6	13.1	11.8	7.6
13	558	"	488.6	12.0	10.8	6.9
14	406	"	336.6	4.8	4.3	2.8
15	326	"	256.6	12.1	10.9	7.0
16	303	"	233.6	7.6	6.8	4.4
17	295	"	225.6	2.6	2.3	1.5
18	299	"	229.6			
19	240	"	170.6			
20	185	"	115.6			
21	172	"	102.6			
22	157	"	87.6			
23	145	"	75.6			
24	(132)	"	62.6			
25	(121)	"	51.6			
26	(112)	"	42.6			
27	(103)	"	33.6			
28	(95)	"	25.6			
29	(88)	"	18.6			
30	(81)	"	11.6			
31	(75)	"	5.6			
Total	4,296.8	1,526.8	2,770.0	73.3	65.8	42.4

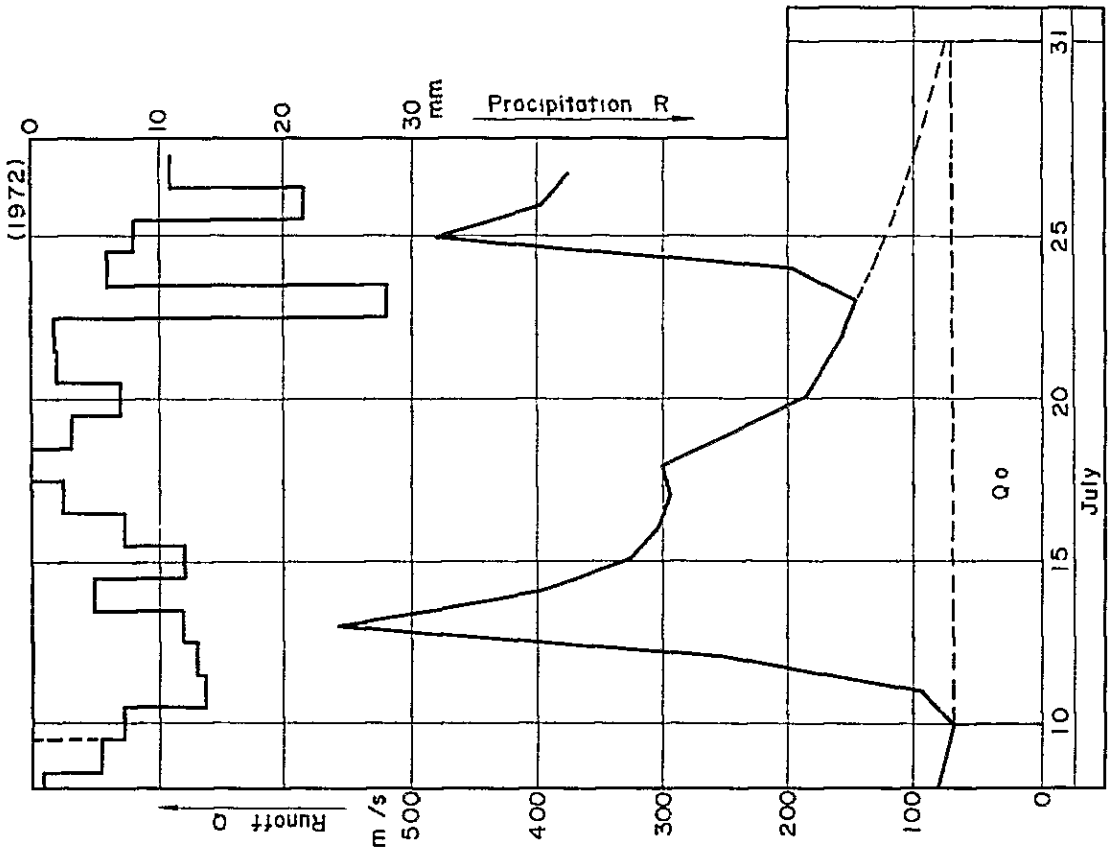
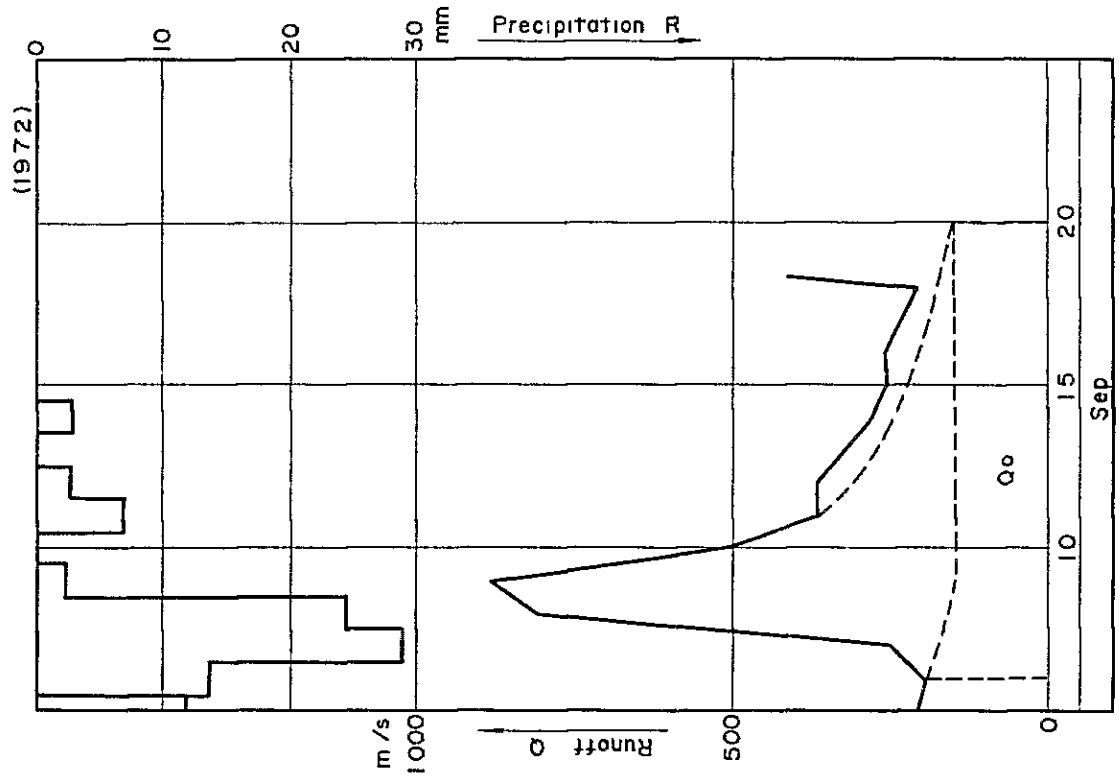


Fig. 7-2 (2)

Date	Q	Qo	Q-Qo	R	Re	Re'
9 6	195	195	0	13.7	15.0	7.9
7	252	178	74	28.9	31.6	16.7
8	810	165	645	24.5	26.8	14.1
9	881	151	730	2.3	2.5	1.3
10	509	〃	358			
11	364	〃	213			
12	(310)	〃	159			
13	(275)	〃	124			
14	(248)	〃	97			
15	(228)	〃	77			
16	(210)	〃	59			
17	(191)	〃	40			
18	(178)	〃	27			
19	(162)	〃	11			
20	(151)	〃	0			
Total	4,964.0	2,350.0	2,614.0	69.4	75.9	40.0

Fig. 7-2 (3)



Date	Q	Qo	Q − Qo	R	Re	Re'
9 18	209	209	0	11.7	15.6	83
19	768	185	583	39.1	52.1	27.8
20	916	170	746	3.4	4.5	2.4
21	609	"	439	5.9	7.9	4.2
22	478	"	308			
23	379	"	209			
24	(320)	"	150			
25	(280)	"	110			
26	(260)	"	90			
27	(235)	"	65			
28	(220)	"	50			
29	(200)	"	30			
30	(184)	"	14			
10 1	(170)	"	0			
Total	5,2280	2,4340	2,794.0	60.1	80.1	42.7

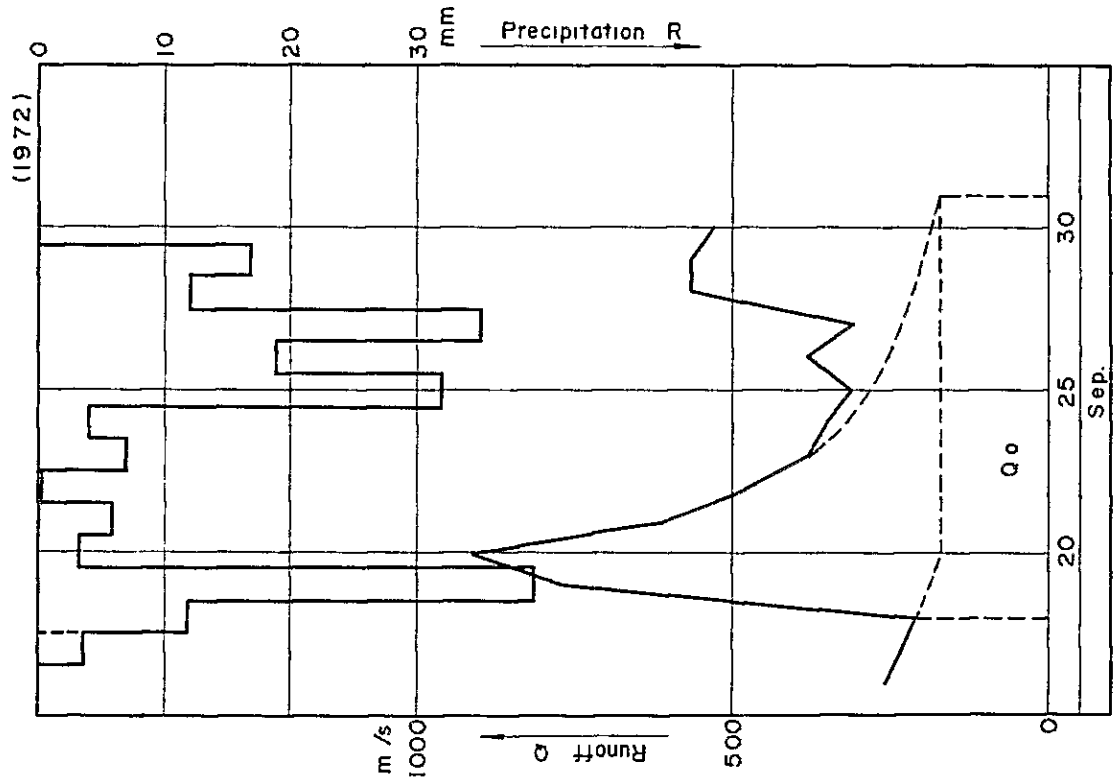


Fig. 7-2 (4)

Date	Q	Qo	Q - Qo	R	Re	Re'
6. 15	482	482	0	111	38	26
16	724	"	242	314	108	73
17	174	"	1258	20.4	7.0	4.8
18	385	"	3368	522	18.0	12.2
19	475	"	4268	68	2.3	1.6
20	360	"	3118	37	1.3	0.9
21	240	"	1918			
22	171	"	1228			
23	(130)	"	818			
24	(110)	"	618			
25	(100)	"	518			
26	(93)	"	448			
27	(86)	"	378			
28	(78)	"	298			
29	(72)	"	238			
30	(68)	"	198			
7. 1	(62)	"	138			
2	(57)	"	88			
3	(52)	"	38			
Total	2,833.6	915.8	1,917.8	1256	432	294

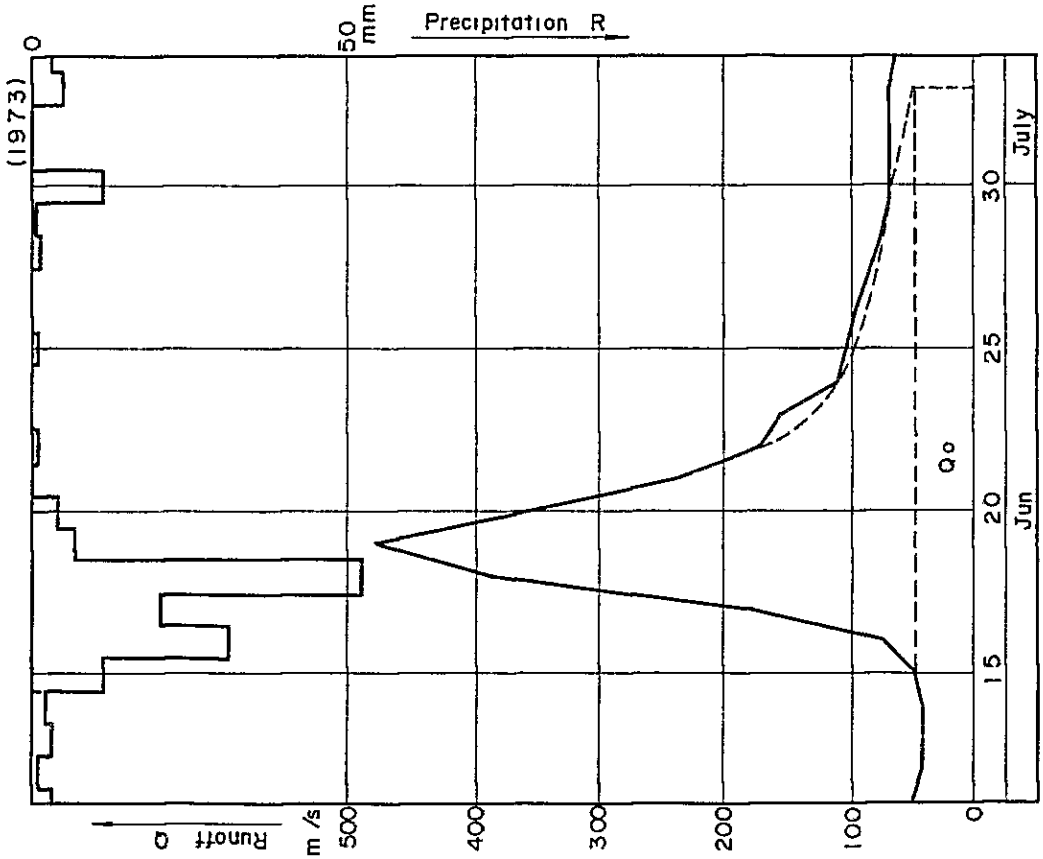
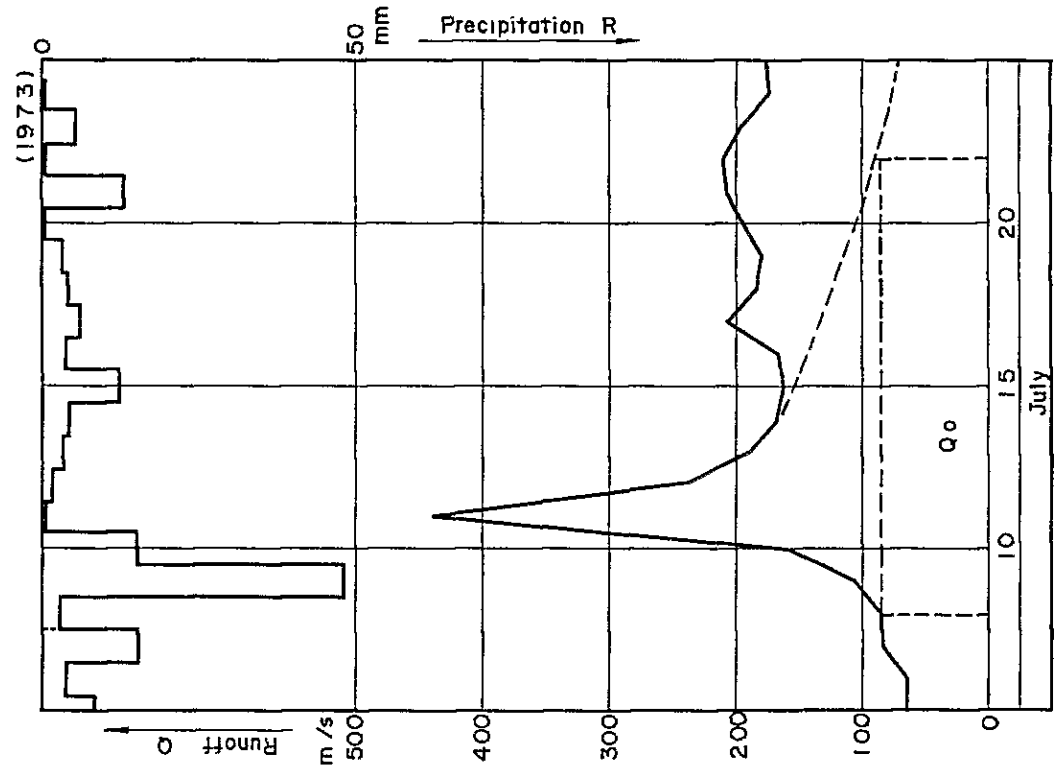


Fig. 7-2 (5)

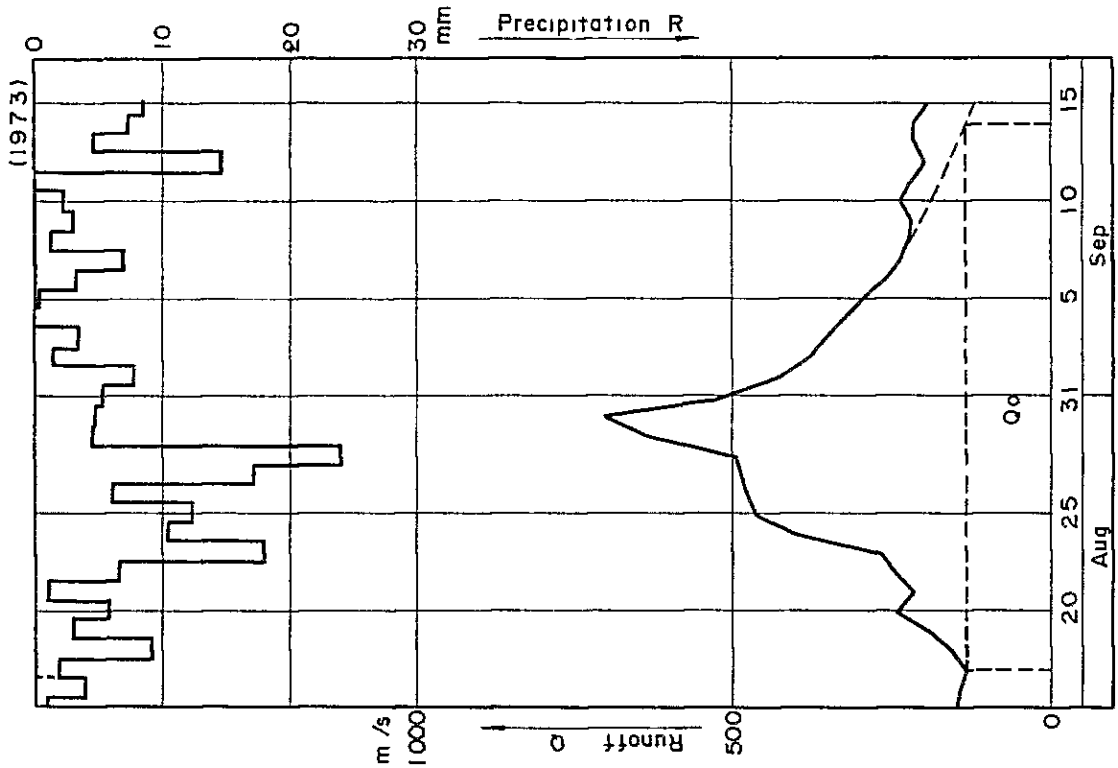
Date	Q	Qo	Q-Qo	R	Re	Re'
7 8	838	838	0	3.1	1.6	0.8
9	104	"	20.2	48.1	25.6	11.9
10	160	"	76.2	15.6	8.3	3.9
11	441	"	357.2	0.9	0.5	0.2
12	239	"	155.2			
13	188	"	104.2			
14	170	"	86.2			
15	(158)	"	74.2			
16	(145)	"	61.2			
17	(135)	"	51.2			
18	(125)	"	41.2			
19	(114)	"	30.2			
20	(105)	"	21.2			
21	(96)	"	12.2			
22	(89)	"	5.2			
Total	2,352.8	1,257.0	1,095.8	67.7	36.0	16.8

Fig. 7-2 (6)



Date	Q	Qo	Q − Qo	R	Re	Re'
8. 17	137	137	0	18	18	10
18	156	〃	19	92	90	51
19	192	〃	55	29	28	16
20	243	〃	106	39	58	33
21	216	〃	79	11	11	06
22	242	〃	105	65	63	36
23	267	〃	130	182	177	102
24	401	〃	264	104	101	57
25	466	〃	329	124	121	68
26	477	〃	340	60	59	33
27	485	〃	348	172	168	95
28	496	〃	359	241	235	133
29	631	〃	494	46	45	25
30	702	〃	565	47	46	26
31	514	〃	377	54	53	30
9 1	422	〃	285	78	76	43
2	371	〃	234	15	15	08
3	350	〃	213	35	34	19
4	323	〃	186			
5	296	〃	159			
6	260	〃	123			
7	236	〃	99			
8	222	〃	85			
9	(207)	〃	70			
10	(190)	〃	53			
11	(175)	〃	38			
12	(161)	〃	24			
13	(149)	〃	12			
14	(137)	〃	0			
Total	9,1240	3,973.0	5,151.0	1432	139.8	79 1

Fig.7-2 (7)



Date	Q	Qo	Q - Qo	R	Re	Re'
10 29	158	158	0	0	0	0
30	148	139	9	9.8	12.8	4.5
31	147	116	31	5.7	7.5	2.6
11, 1	200	106	94	11.7	15.3	5.4
2	282	102	184	10.1	13.2	4.7
3	296	98	198	0.4	0.5	0.2
4	224	"	126			
5	194	"	96			
6	176	"	78			
7	169	"	71			
8	159	"	61			
9	148	"	50			
10	141	"	43			
11	131	"	33			
12	122	"	24			
13	115	"	17			
14	110	"	12			
15	106	"	8			
16	103	"	5			
17	100	"	2			
Total	3,229.0	2,091.0	1,138.0	37.7	49.3	17.4

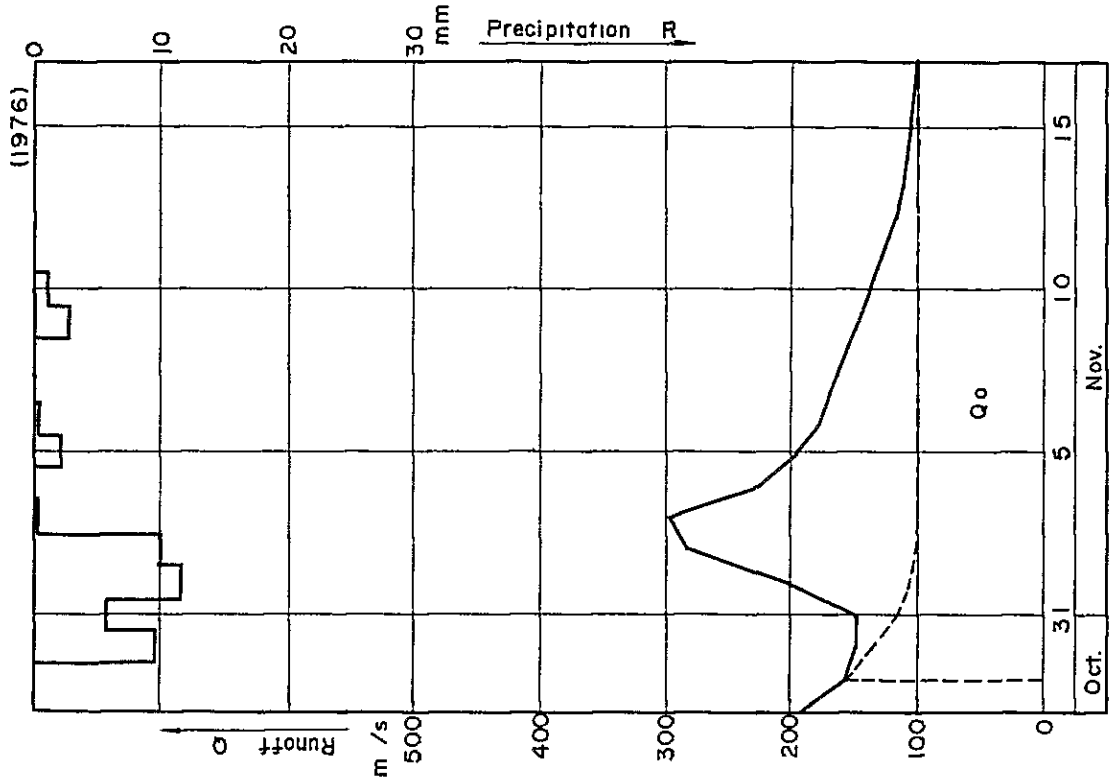


Fig. 7-2(8)

Date	Q	Qo	Q − Qo	R	Re	Re'
8. 6	107	107	0	36	41	2.9
7	126	"	19	8.2	9.3	6.6
8	182	"	75	14.1	16.0	11.4
9	247	"	140	7.4	8.4	6.0
10	315	"	108	17.7	20.1	14.3
11	364	"	257	7.4	8.4	6.0
12	601	"	494	24.8	28.1	20.1
13	642	"	535	33.4	37.9	27.1
14	1,250	"	1,143	8.9	10.1	7.2
15	1,270	"	1,163	0.7	0.8	0.6
16	625	"	518			
17	412	"	305			
18	389	"	282			
19	368	"	261			
20	335	"	228			
21	299	"	192			
22	(275)	"	168			
23	(253)	"	146			
24	(233)	"	126			
25	(217)	"	110			
26	(200)	"	93			
27	(184)	"	77			
28	(170)	"	63			
29	(157)	"	50			
30	(145)	"	38			
Total	9,366.0	2,675.0	6,691.0	126.2	143.2	102.2

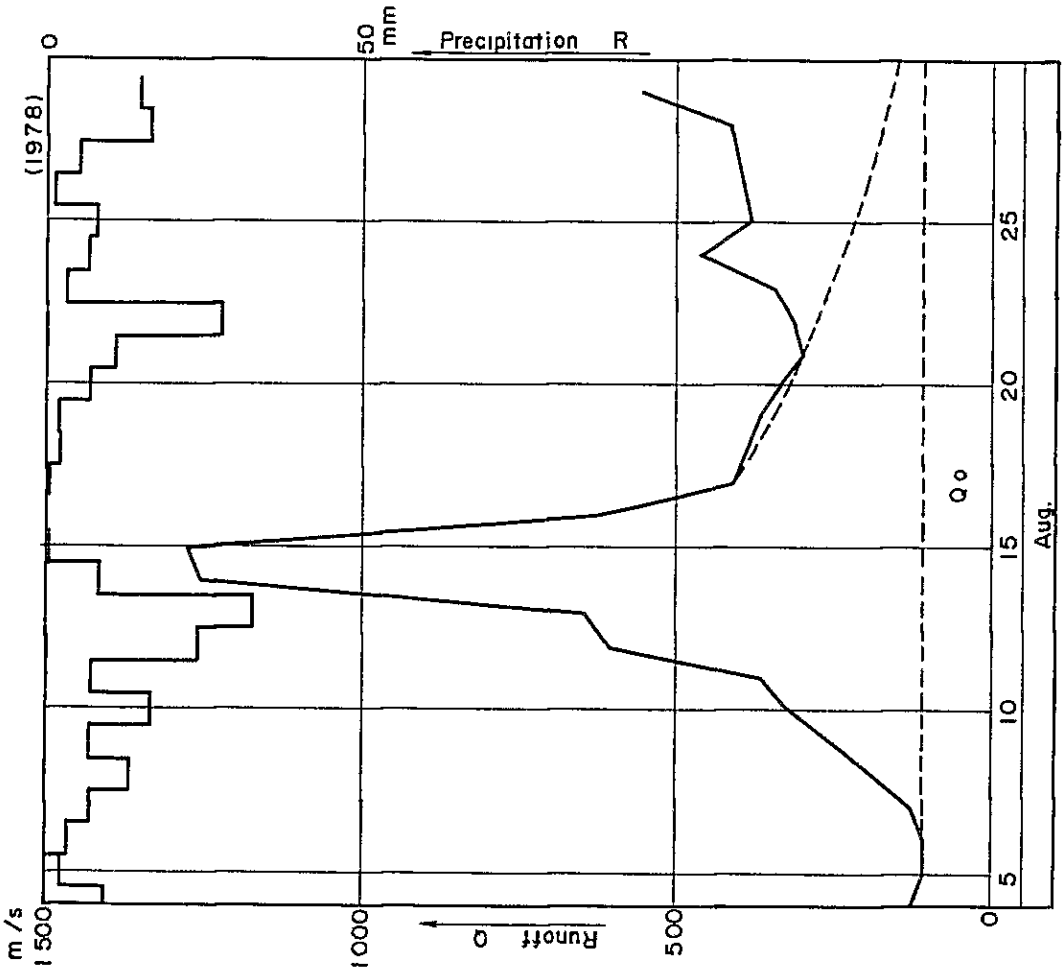


Fig. 7-2(9)

Fig. 7-3(1)

Analysis of Recession (1)

Semilogarithmic Plotting of a Hydrograph

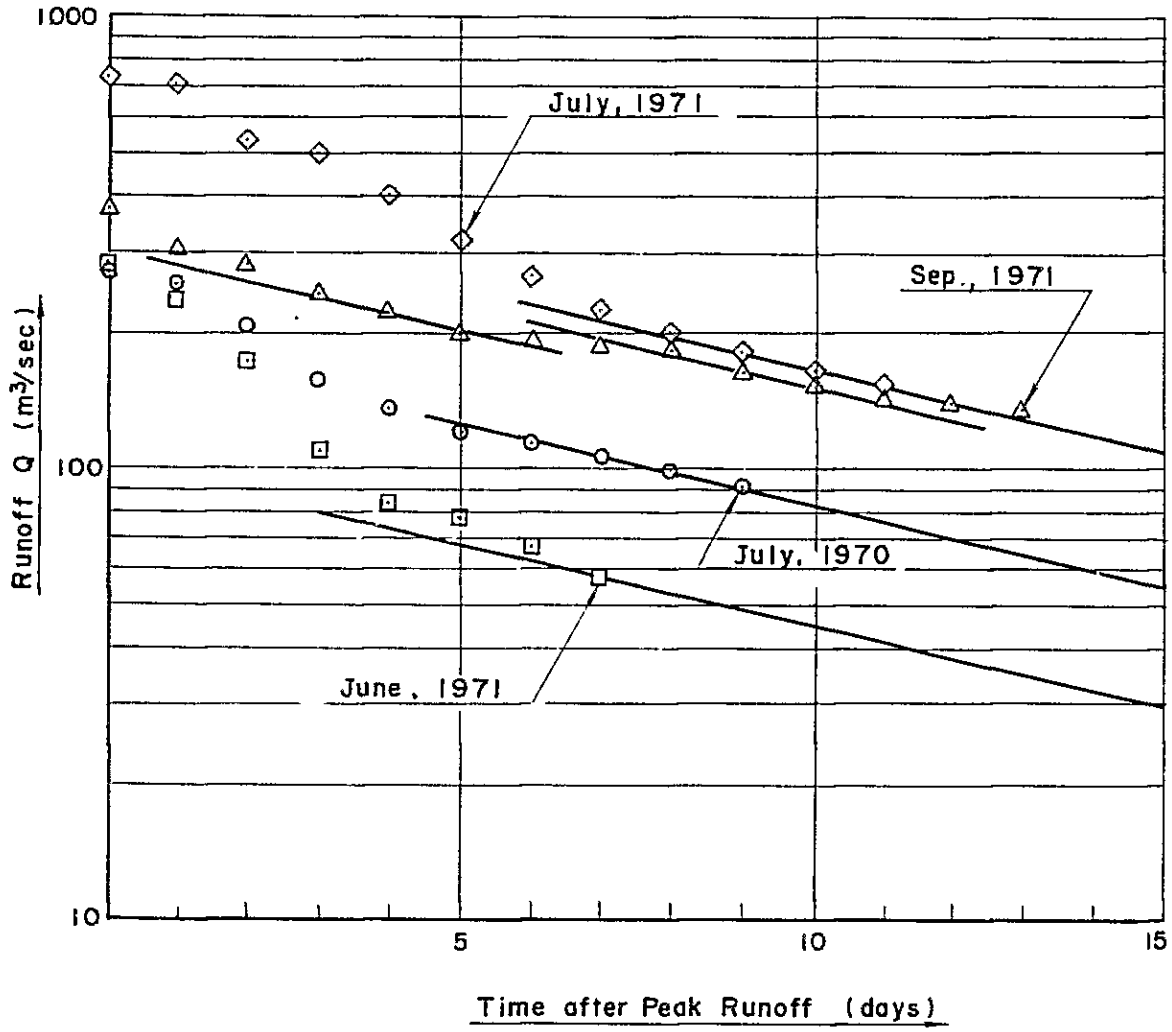


Fig. 7-3(2)

Analysis of Recession (2)

Semilogarithmic Plotting of a Hydrograph

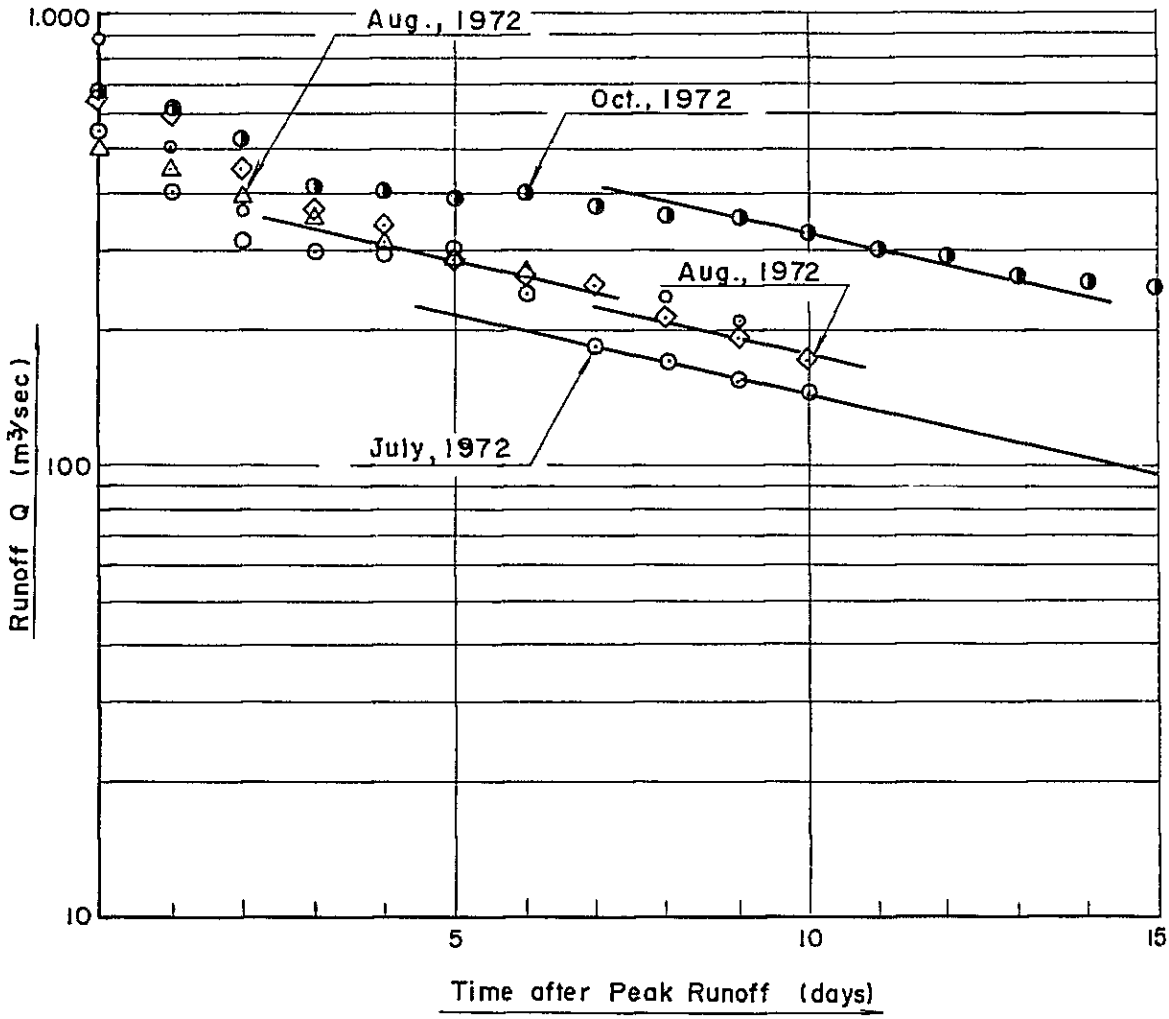


Fig. 7-3(3)

Analysis of Recession (3)

Semilogarithmic Plotting of a Hydrograph

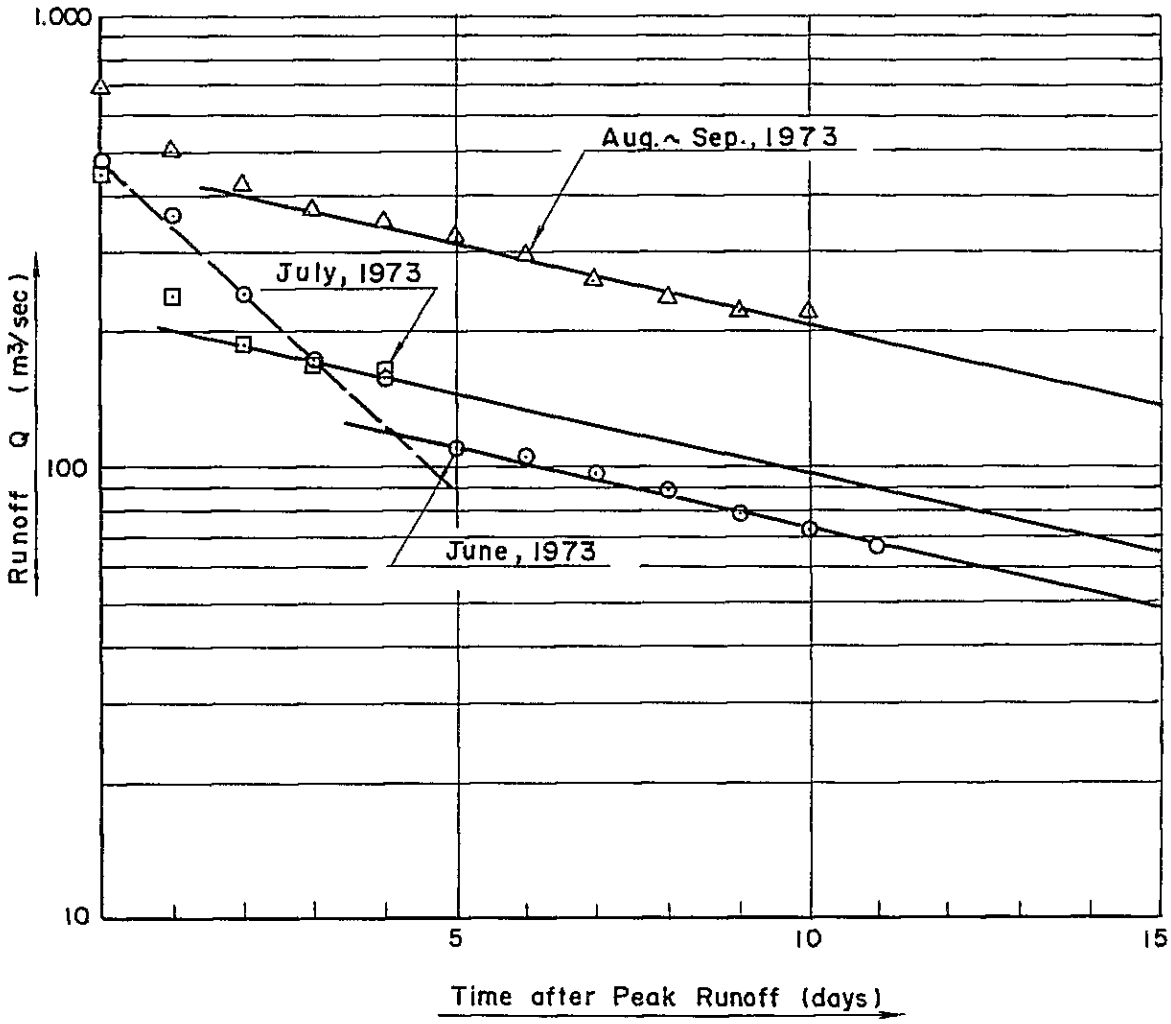


Fig. 7-3 (4)

Analysis of Recession (4)

Semilogarithmic Plotting of a Hydrograph

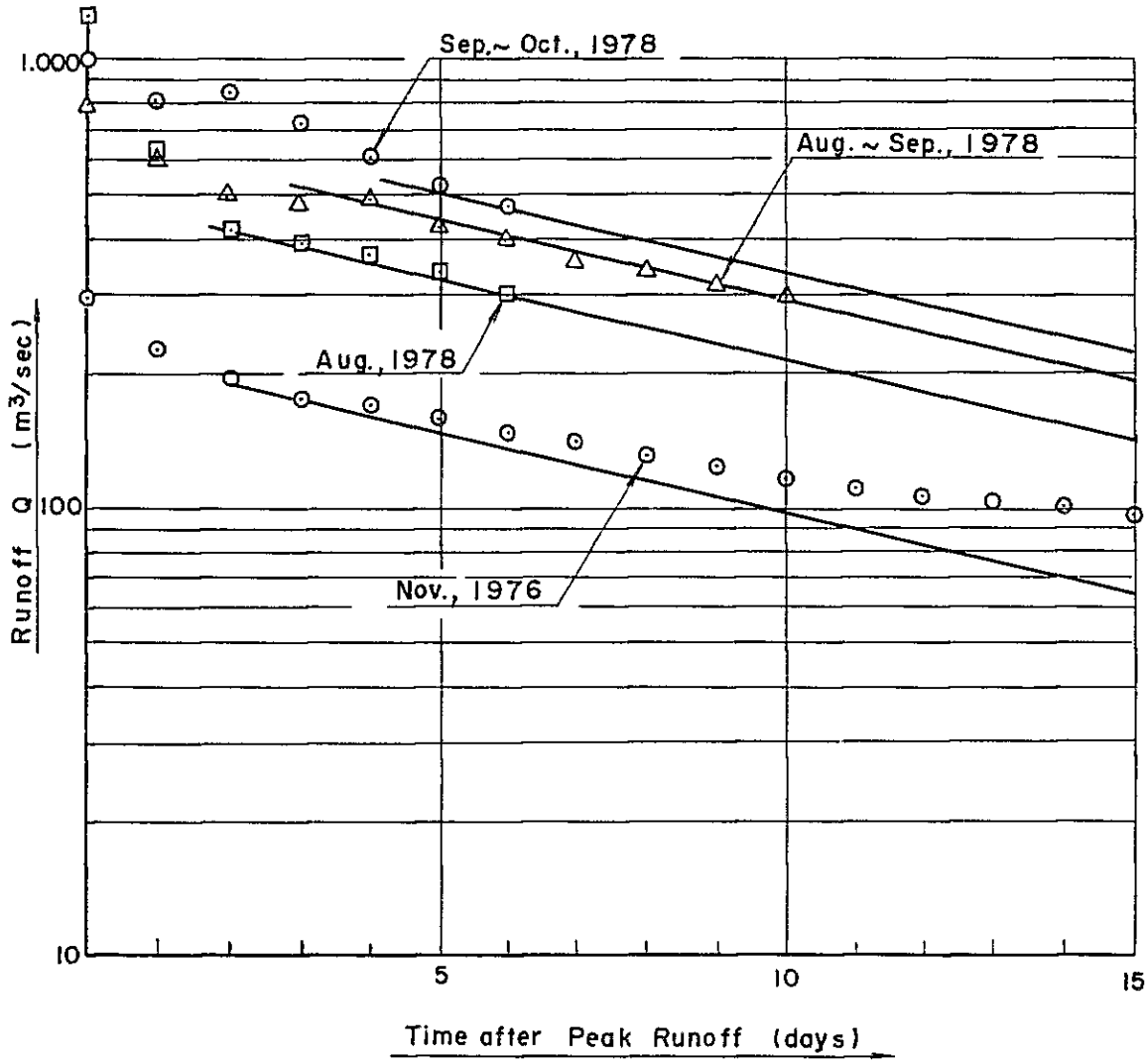


Fig. 7－4

Analysis of Long－term Recession

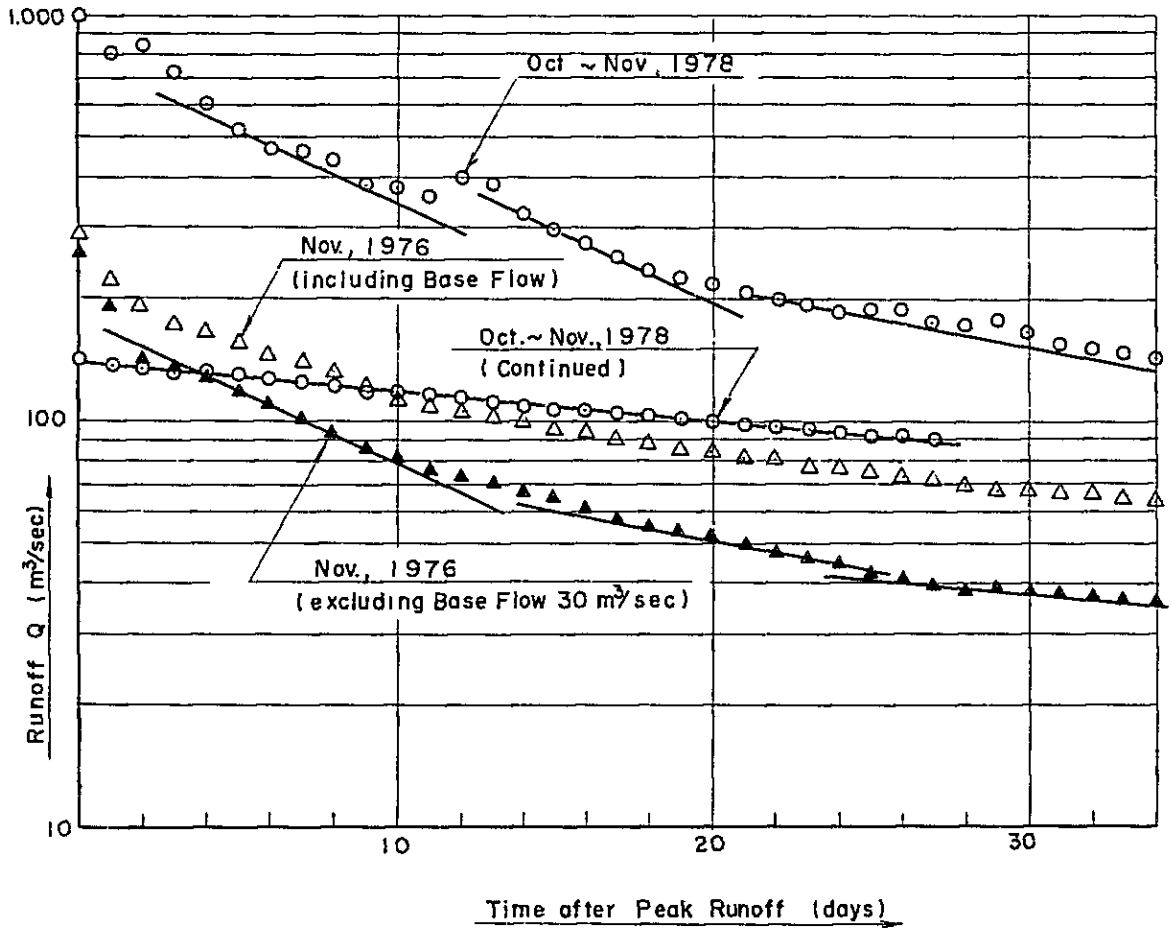


Fig. 7 – 5 LINEAR ANALYSIS OF RAINFALL AND RUNOFF UPPER QUAE YAI PROJECT

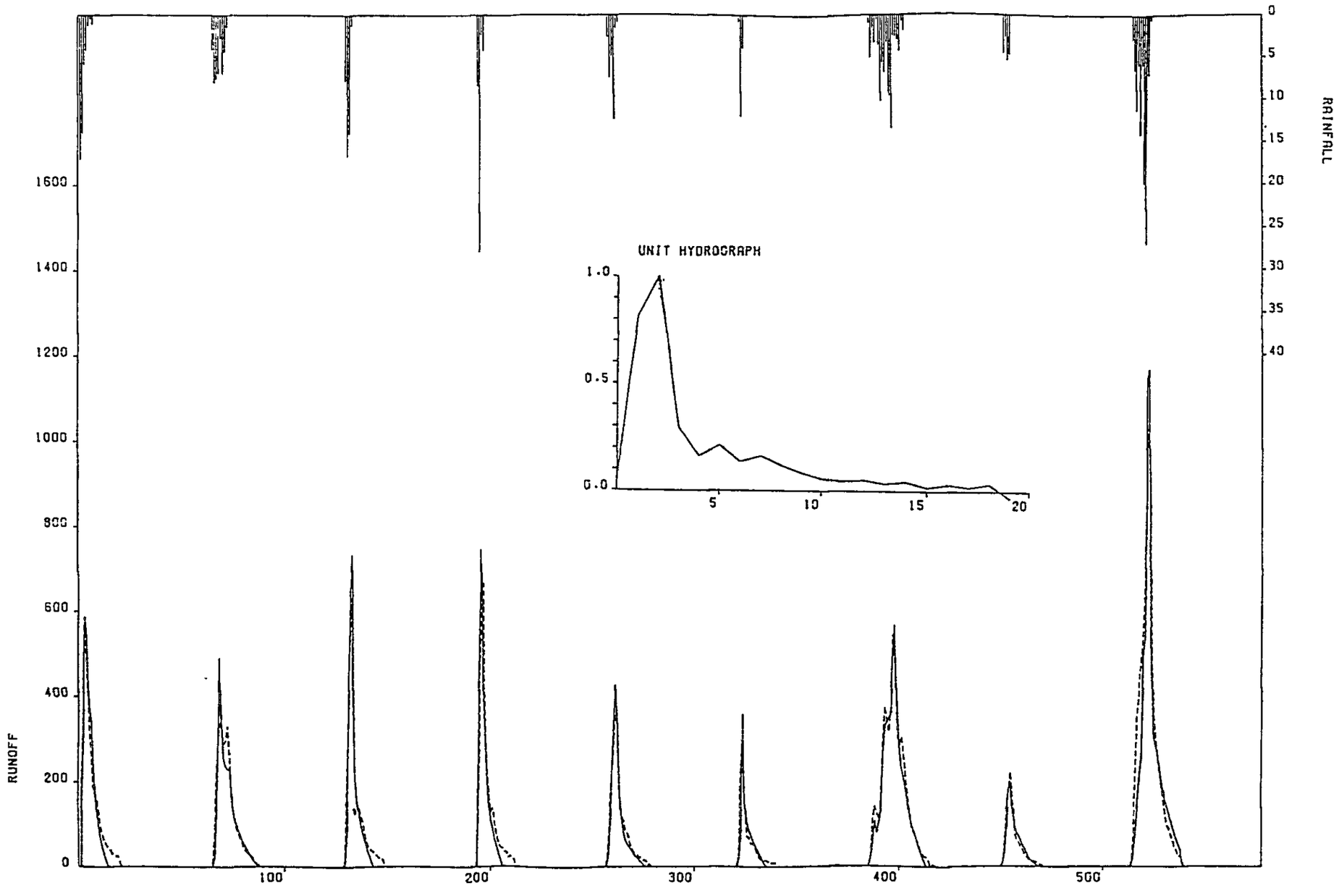


Fig. 7-6 Adopted Unit Hydrograph

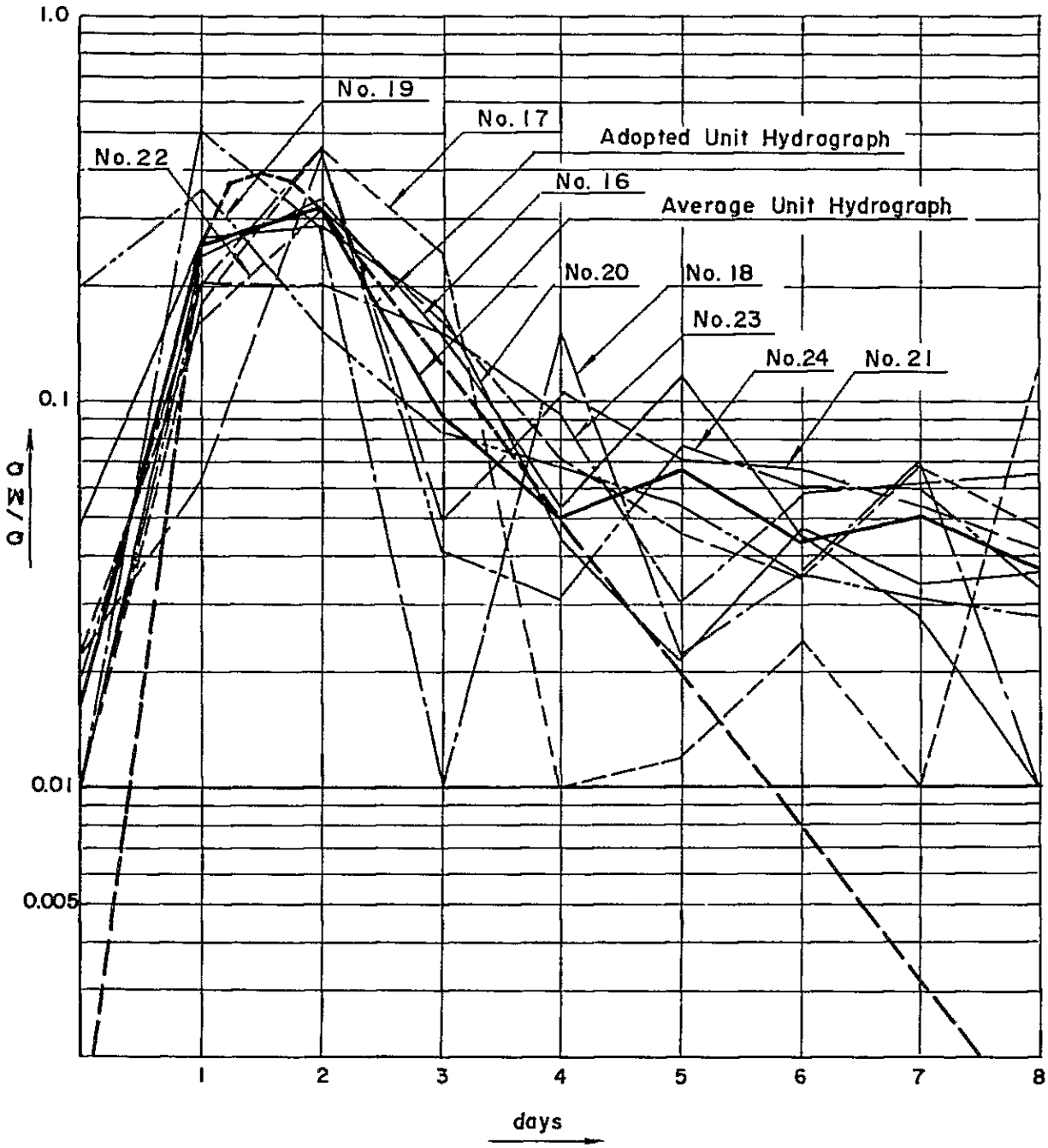


Fig. 7-7 Unit Hydrograph at Hard Pana

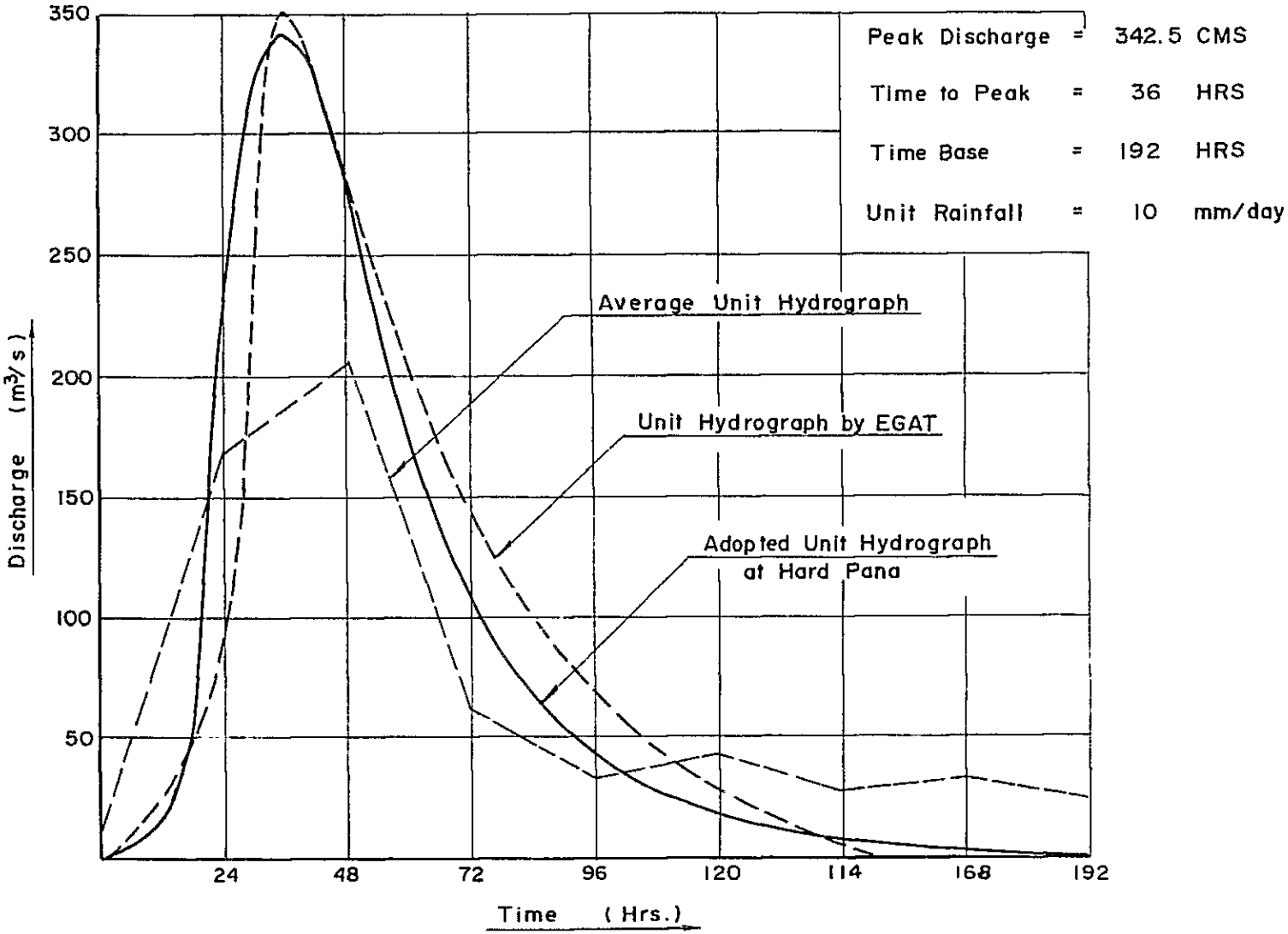


Fig.7-8 Unit Hydrograph at Nam Chon

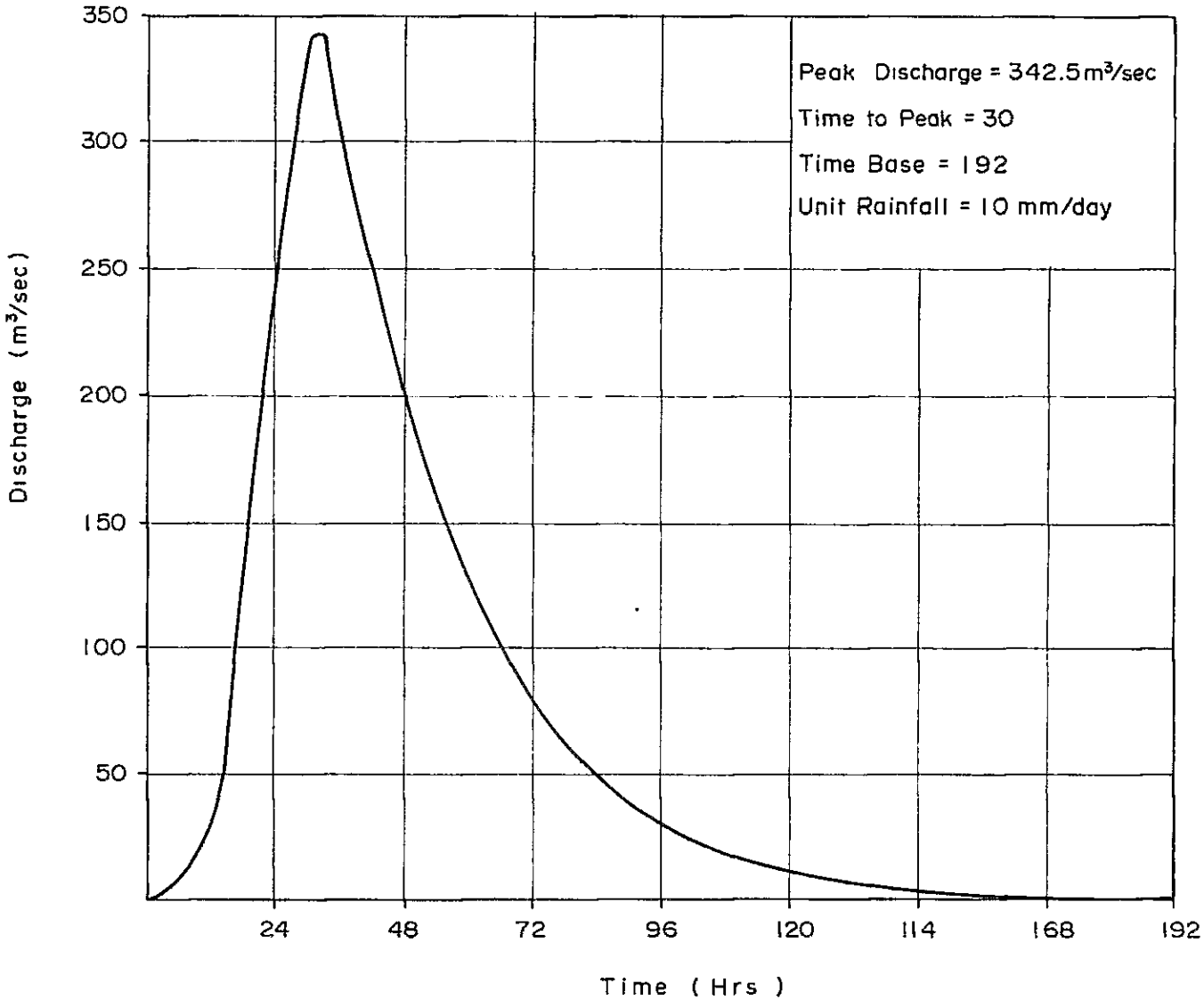


Fig.7-9(1) DAD – Analysis

Relation bet. PMP and Duration

at Hard Pana Basin

(C A = 5644 km^2)

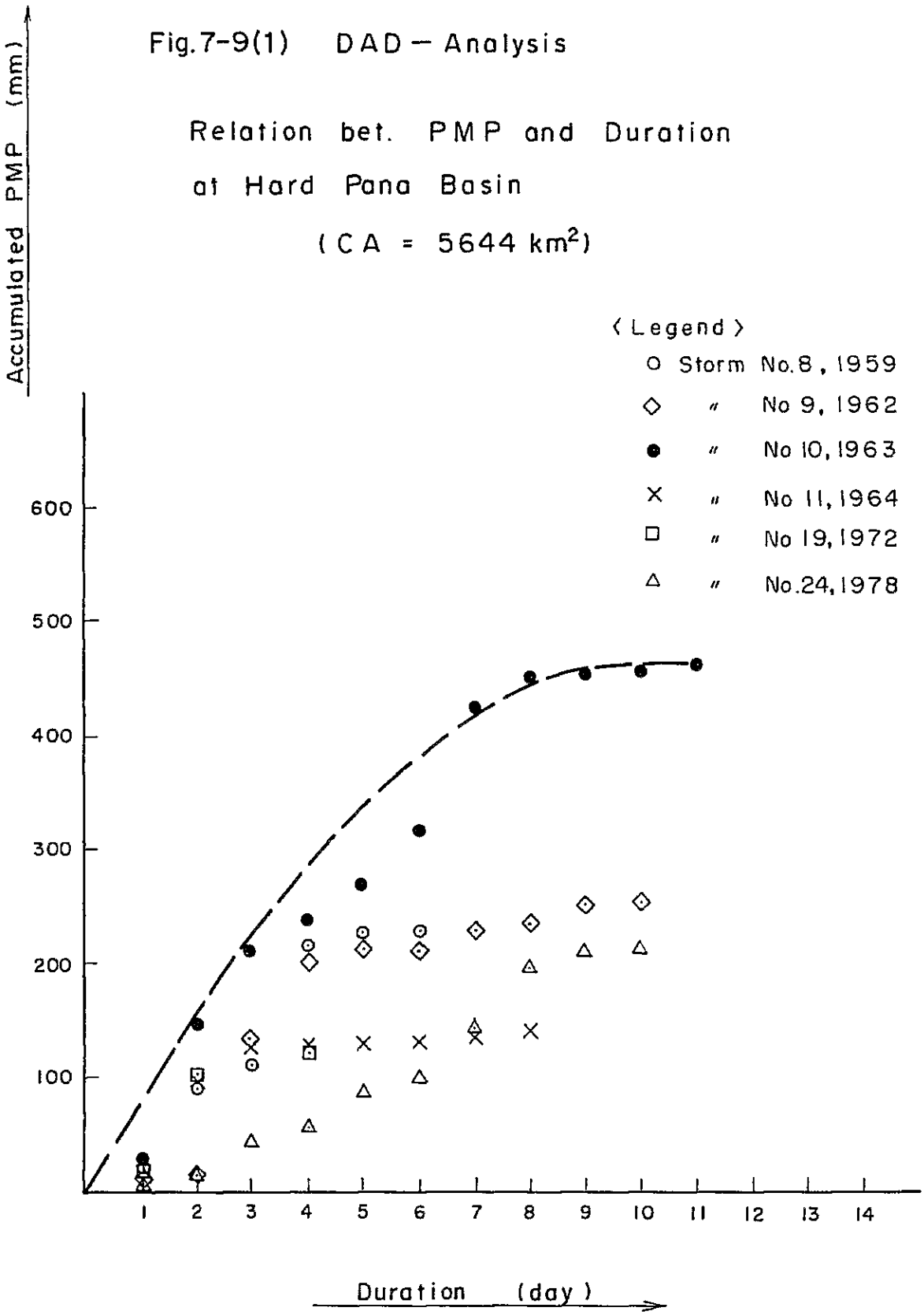


Fig. 7-9(2) D A D – Analysis

Relation bet. PMP and Duration

at Kang Rieng Basin

(CA = 10,802 km²)

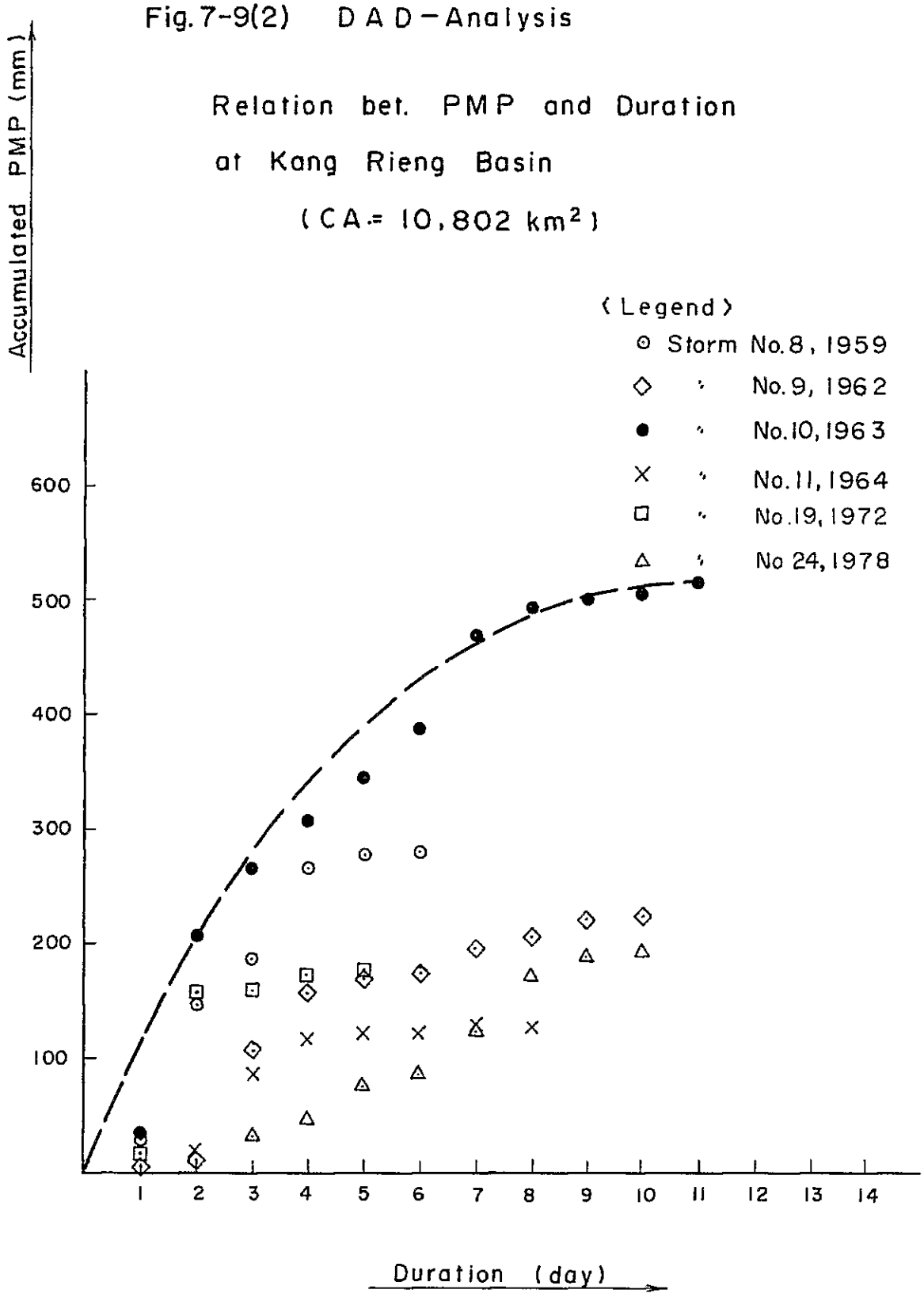


Fig. 7-10 Nam Chon Reservoir — Flood Routing —

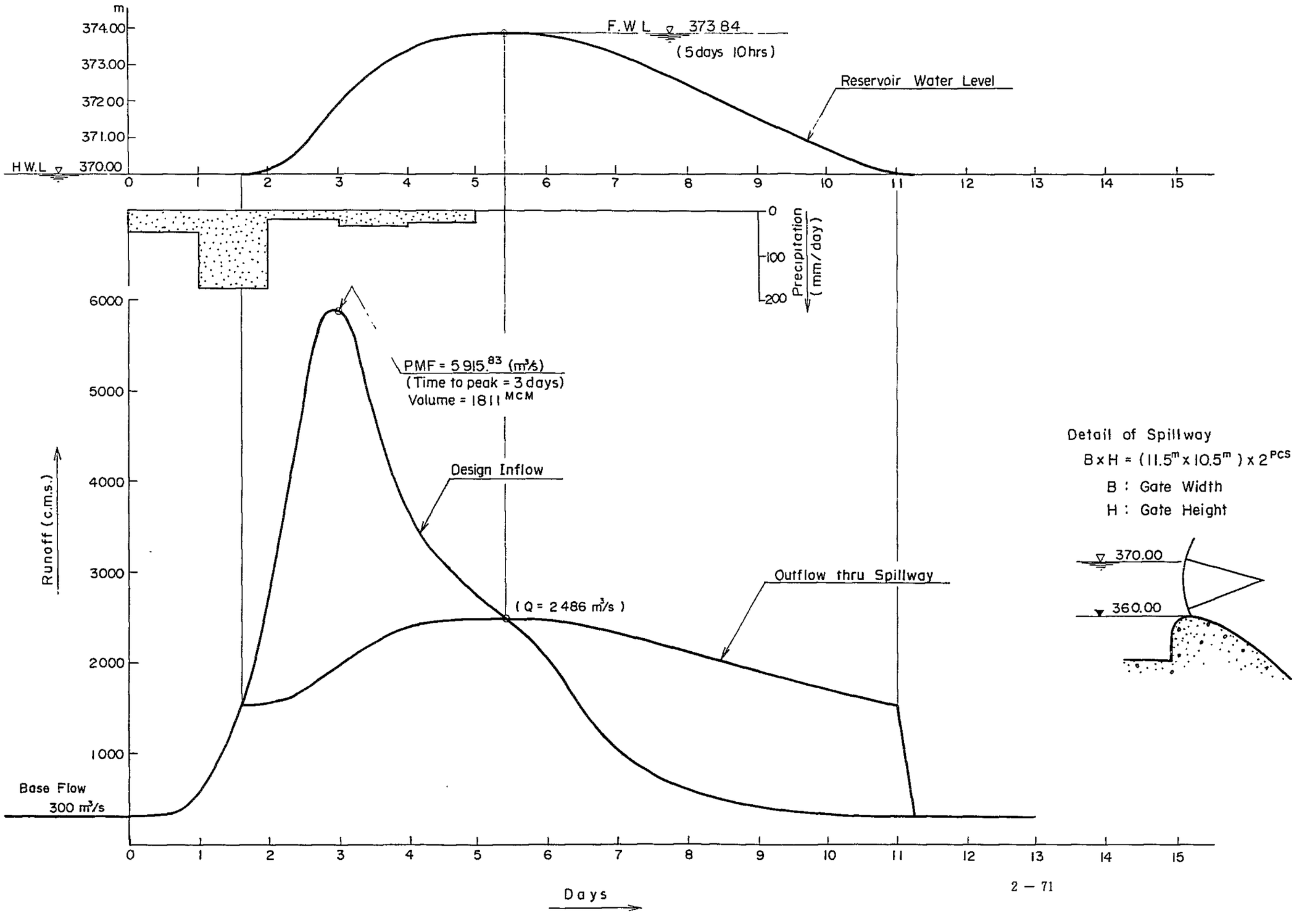


Fig. 7 – 11

Correlation of Specific Runoff of Peak Runoff between Hard Pana and Ban Chao Nen.

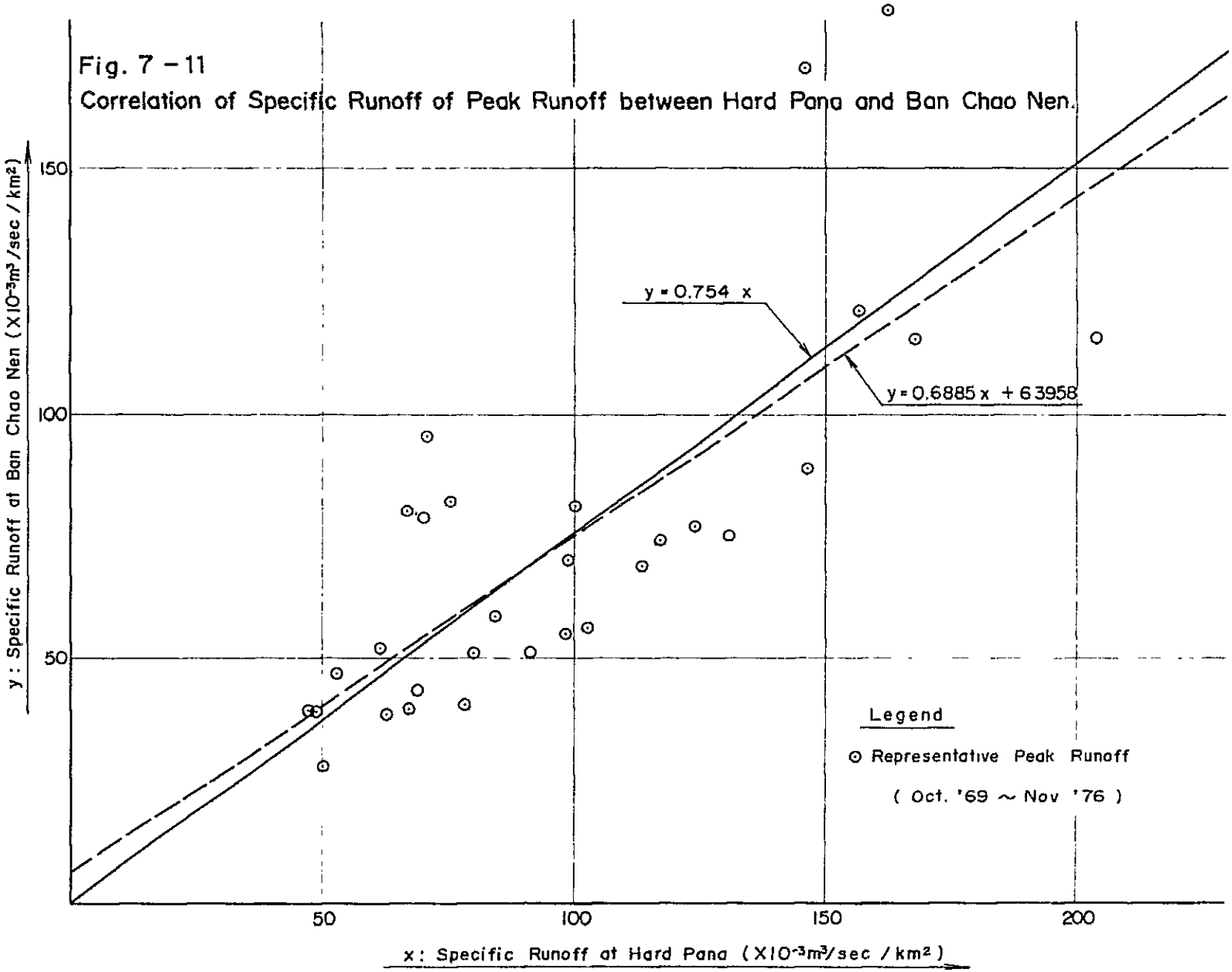


Fig. 7-12

Ratio of Specific Runoff and Rainfall of Each Site to Hard Pana G.S. for Rainy Season (Aug.~Oct.)

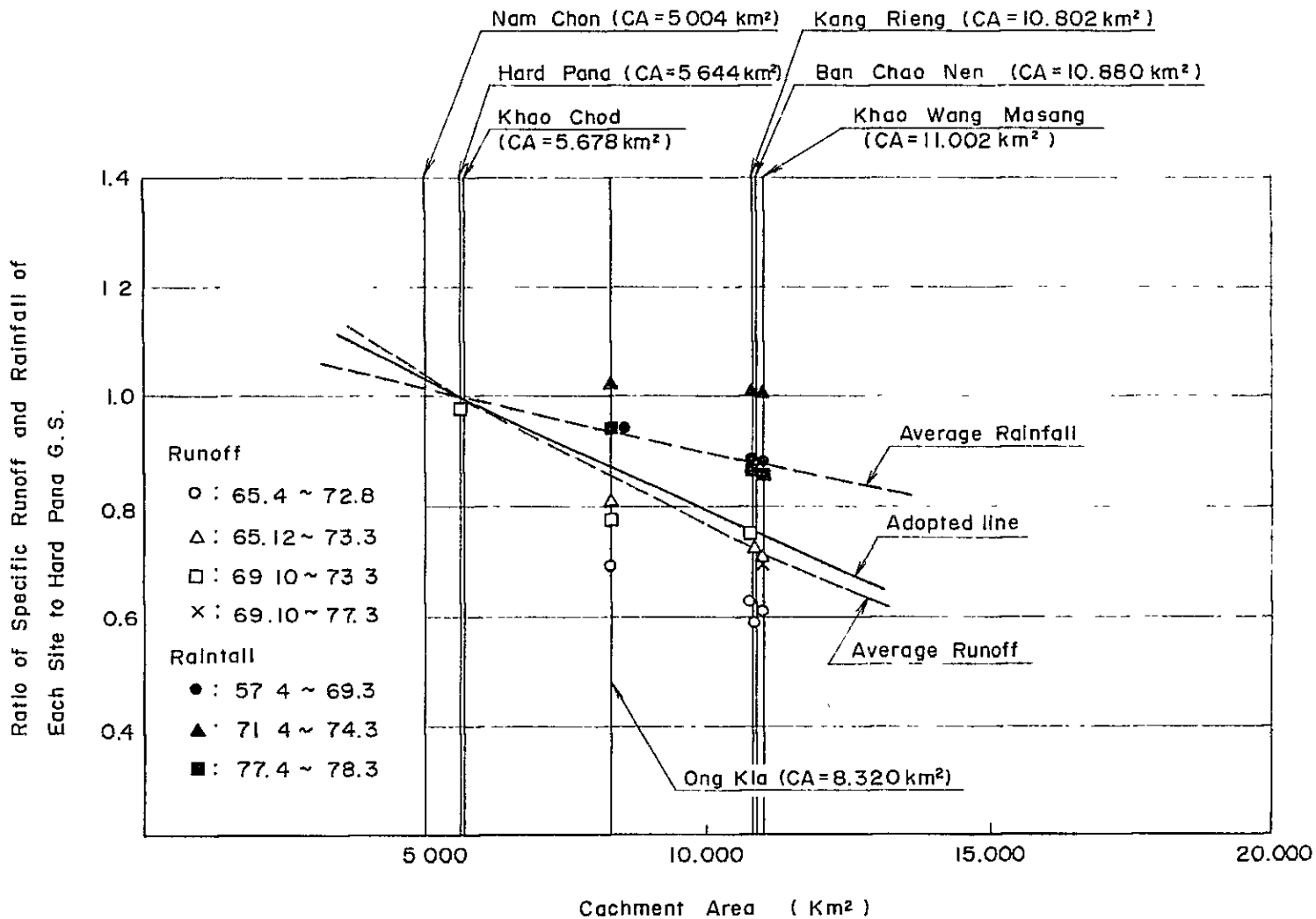


Fig 7-13(1)

Flood Discharge for Various Return Period at Hard Pana

$Q_{HP} = 0.706 \times Q_{KR}$

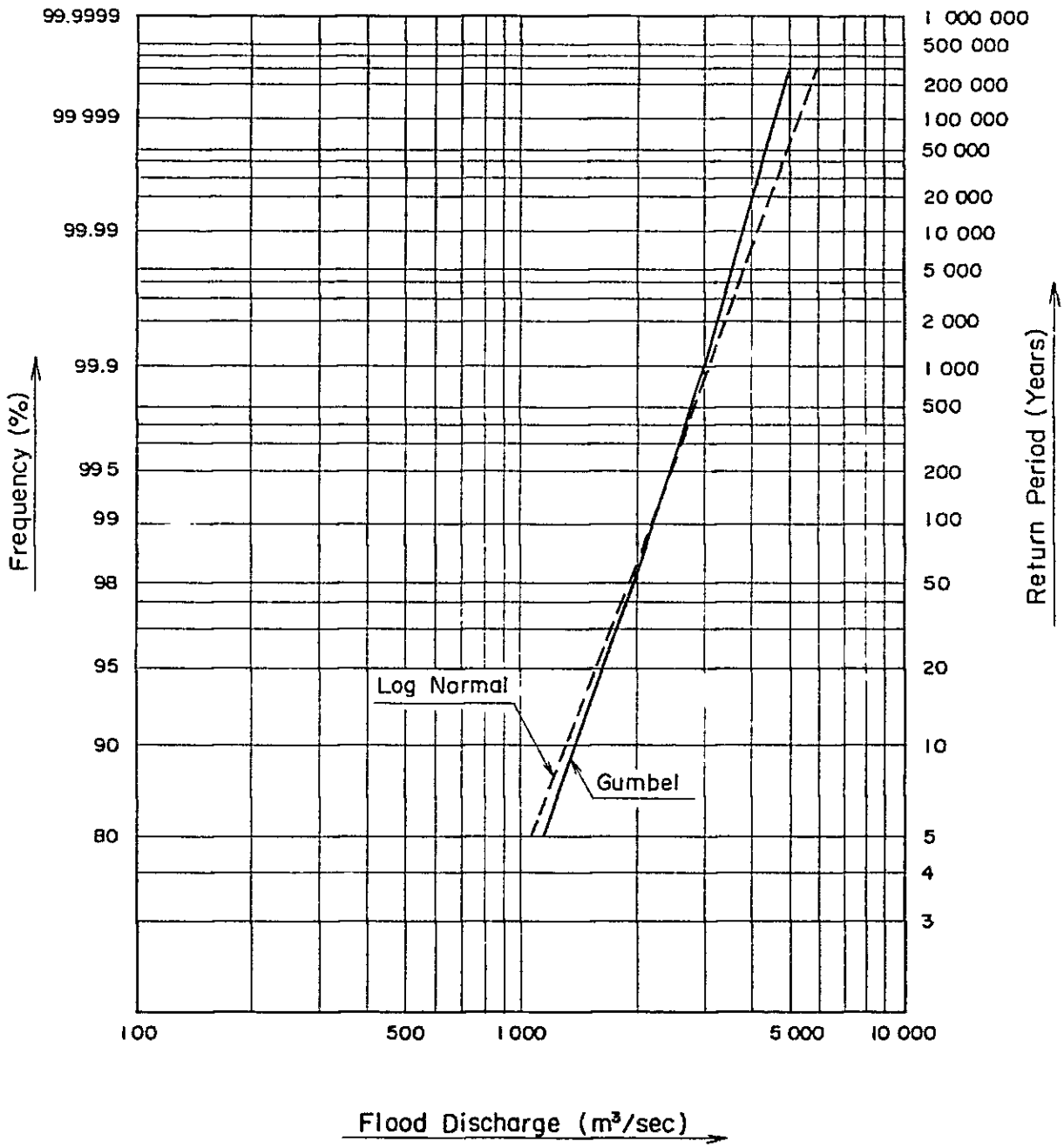


Fig 7-13(2)

Flood Discharge for Various Return Period at Hard Pana

$Q_{HP} = 0.759 \times Q_{KR} - 53$

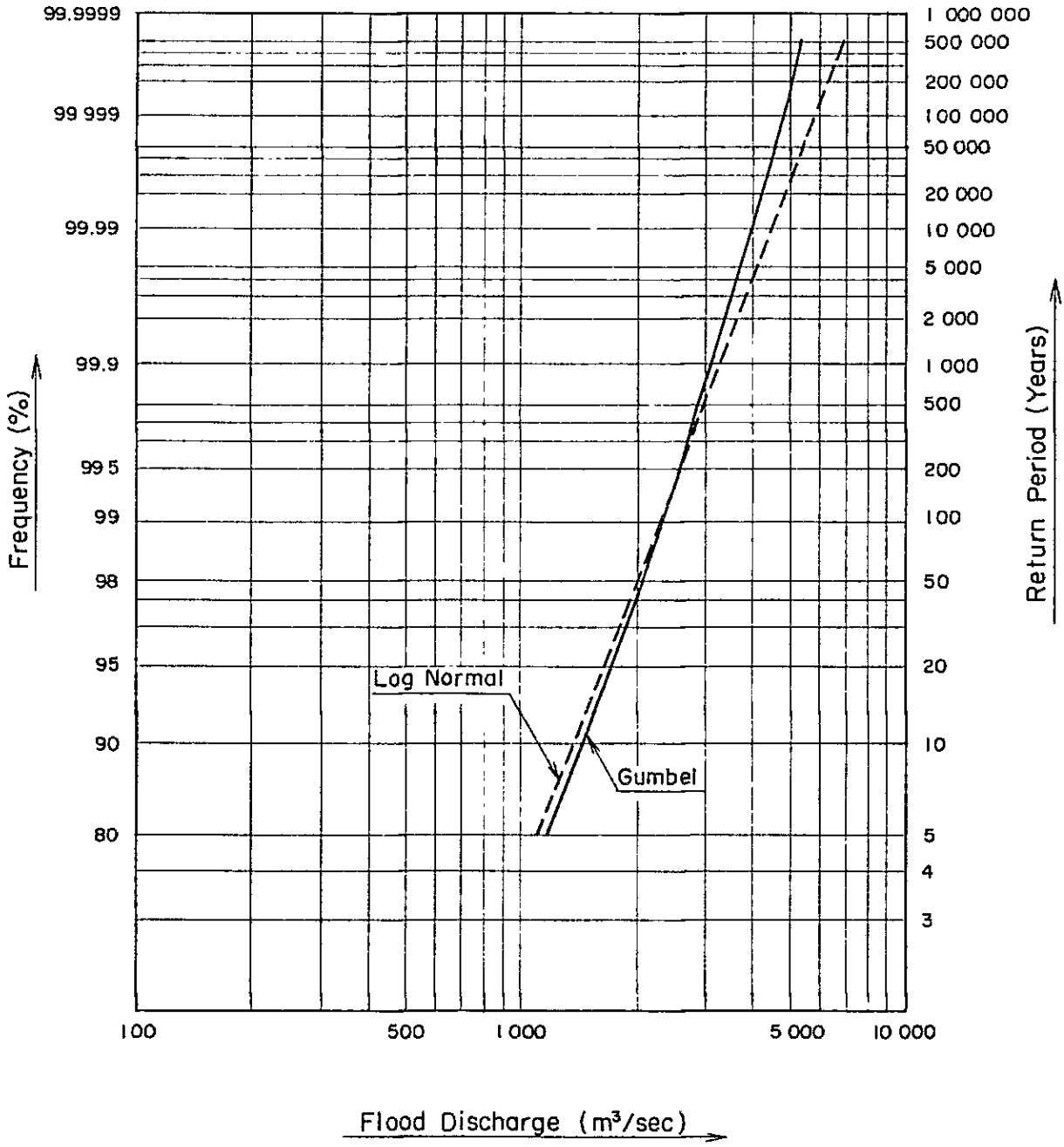


Fig 7-14(1)

Flood Discharge for Various Return Period at Nam Chon

$Q_{HP} = 0.706 \times Q_{KR}$

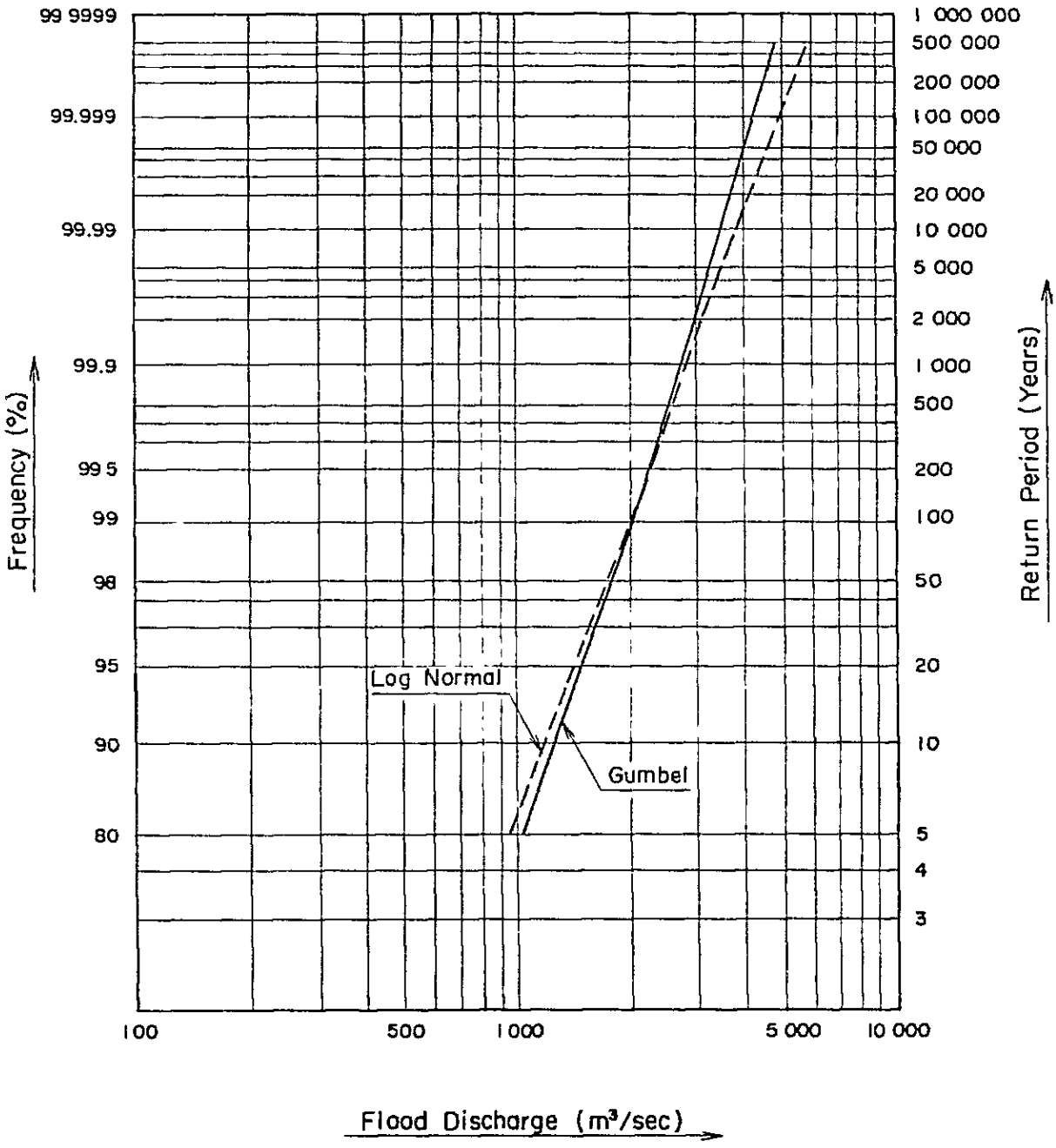


Fig 7-14(2)

Flood Discharge for Various Return Period at Nam Chon

$Q_{HP} = 0.759 \times Q_{KR} - 53$

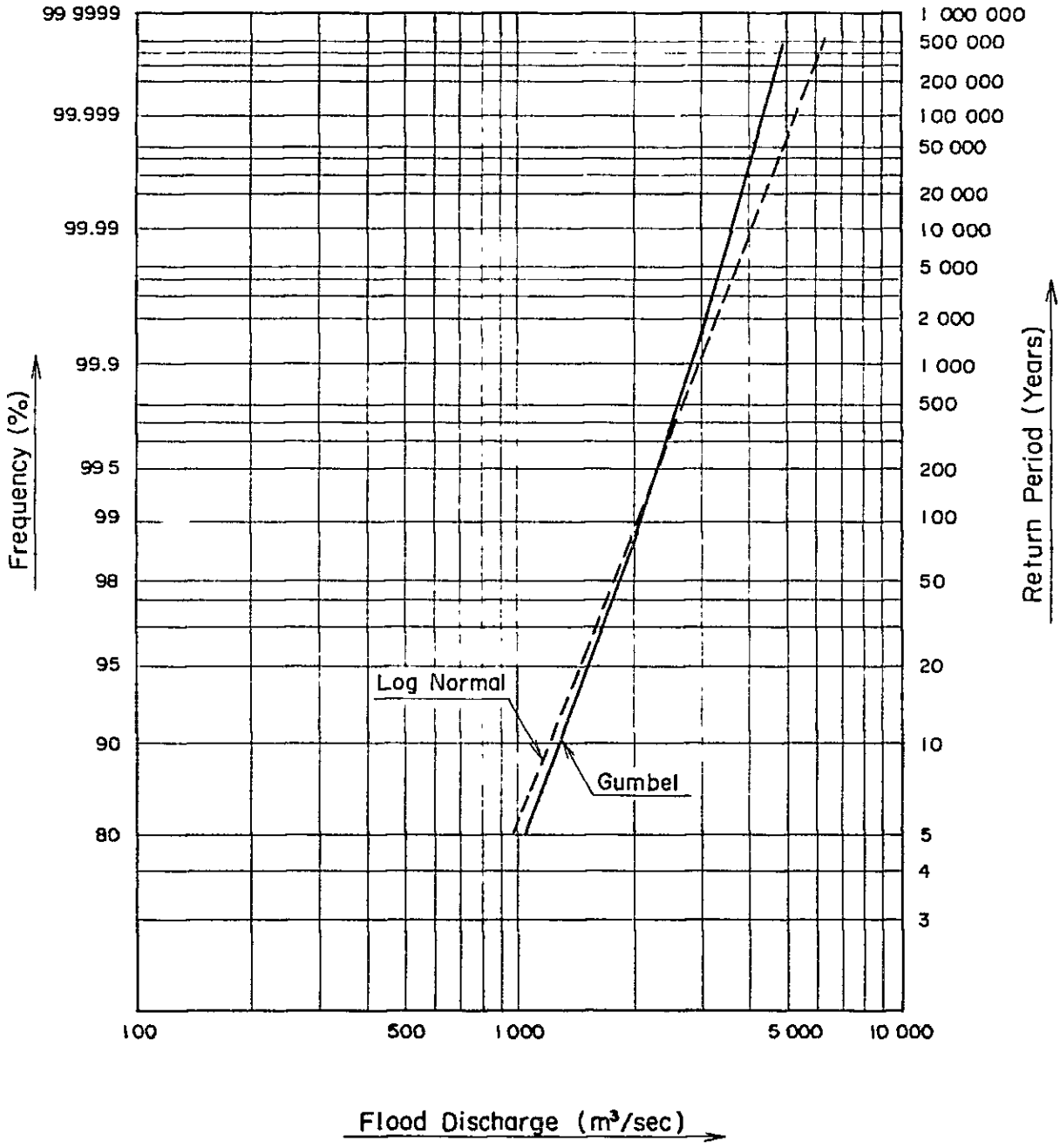


Fig. 7-15 Forecasting System at the First Stage

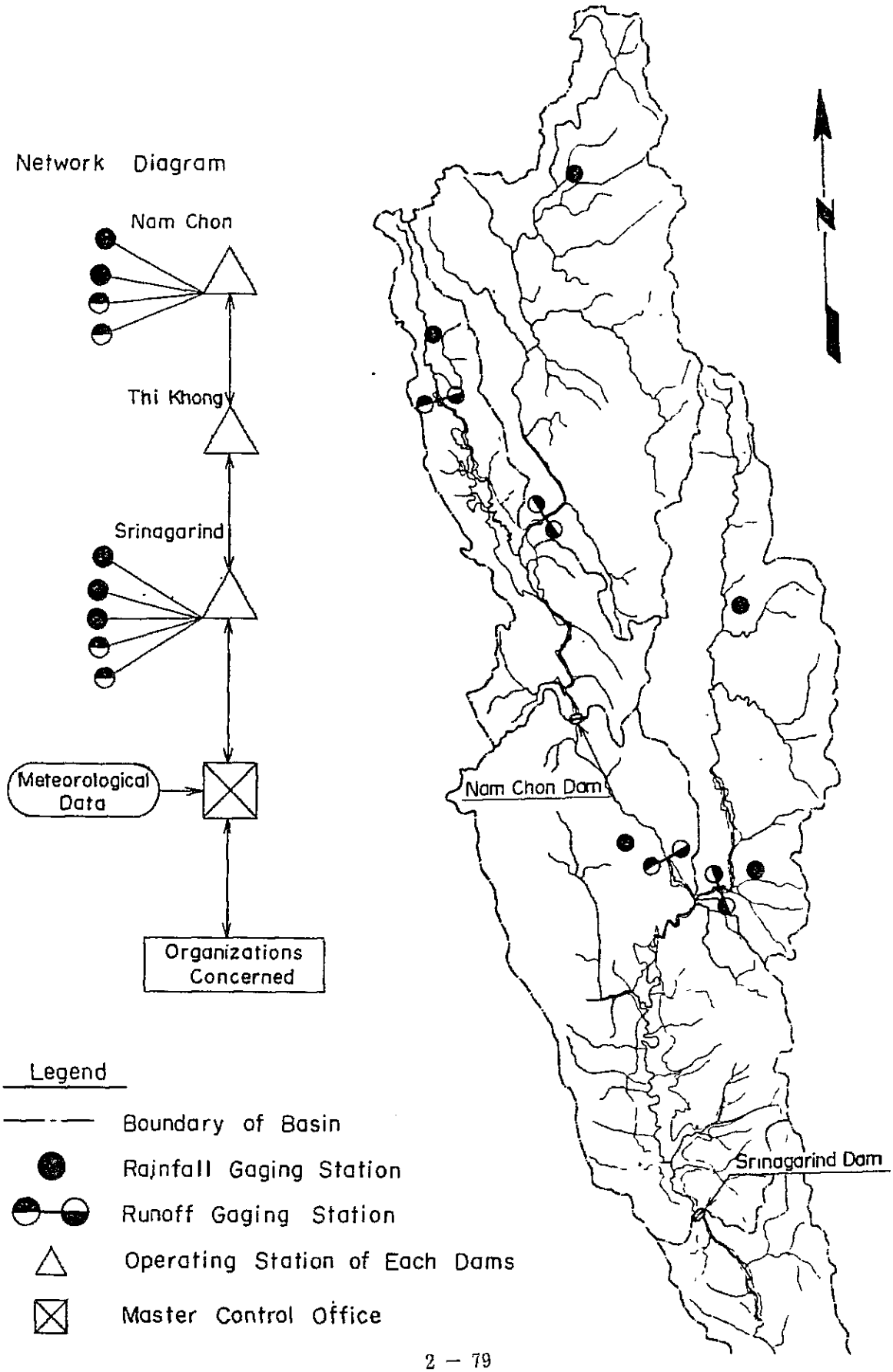


TABLE 7-1 (1)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1970 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	4.2	2.8	3.0	0.8	3.8
2	6.0	0	4.3	0	4.3
3	3.0	0	2.1	0	2.1
4	7.6	4.6	5.4	1.3	6.7
5	12.0	2.7	8.5	0.8	9.3
6	2.3	0	1.6	0	1.6
7	0	0	0	0	0
8	0	0	0	0	0
9	8.2	0	5.8	0	5.8
10	3.0	0	2.1	0	2.1
11	4.1	0	2.9	0	2.9
12	8.4	0	6.0	0	6.0
13	12.5	8.0	8.9	2.3	11.2
14	9.4	2.2	6.7	0.6	7.3
15	8.5	7.2	6.1	2.1	8.2
16	7.2	0	5.1	0	5.1
17	14.0	18.2	10.0	5.2	15.2
18	11.5	4.8	8.2	1.4	9.6
19	7.7	0	5.5	0	5.5
20	8.2	0	5.8	0	5.8
21	0	3.0	0	0.9	0.9
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	4.2	0	3.0	0	3.0
28	6.6	5.2	4.7	1.5	6.2
29	38.4	41.7	27.3	12.0	39.3
30	10.1	8.5	7.2	2.4	9.6
31	0	0	0	0	0
Total	197.1	108.9	140.2	31.3	171.5

TABLE 7-1 (2)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1970 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	2.2	7.7	1.6	2.2	3.8
2	4.0	3.1	2.8	0.9	3.7
3	0	12.9	0	3.7	3.7
4	0	0.6	0	0.2	0.2
5	4.7	0	3.3	0	3.3
6	3.0	22.3	2.1	6.4	8.5
7	6.1	3.0	4.3	0.9	5.2
8	19.2	0	13.7	0	13.7
9	5.0	0	3.6	0	3.6
10	13.2	0	9.4	0	9.4
11	17.6	0	12.5	0	12.5
12	0	5.6	0	1.6	1.6
13	12.2	0	8.7	0	8.7
14	17.3	2.1	12.3	0.6	12.9
15	8.2	11.0	5.8	3.2	9.0
16	6.6	0	4.7	0	4.7
17	12.0	0	8.5	0	8.5
18	9.4	4.9	6.7	1.4	8.1
19	5.2	3.7	3.7	1.1	4.8
20	0	1.6	0	0.5	0.5
21	0	0	0	0	0
22	0	0	0	0	0
23	27.4	5.2	19 5	1.5	21.0
24	35.2	2.4	25.1	0.7	25.8
25	10.2	0	7.3	0	7.3
26	8.7	3.4	6.2	1.0	7.2
27	14.0	0.5	10.0	0.1	10.1
28	12.4	0	8.8	0	8 8
29	20.1	0	14.3	0	14 3
30	3.2	0	2.3	0	2.3
31	0	0	0	0	0
Total	277.1	90.0	197.2	26.0	223.2

TABLE 7-1 (3)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1970 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0.5	0	0.1	0.1
2	0	0.6	0	0.2	0.2
3	0	1.8	0	0.5	0.5
4	10.2	0	7.3	0	7.3
5	5.0	0	3.6	0	3.6
6	8.0	2.3	5.7	0.7	6.4
7	0	5.1	0	1.5	1.5
8	0	0	0	0	0
9	4.6	2.3	3.3	0.7	4.0
10	0	1.5	0	0.4	0.4
11	9.2	21.5	6.6	6.2	12.8
12	11.0	8.3	7.8	2.4	10.2
13	8.3	1.7	5.9	0.5	6.4
14	12.0	12.2	8.5	3.5	12.0
15	4.0	1.6	2.8	0.5	3.3
16	0	0.8	0	0.2	0.2
17	0	0	0	0	0
18	2.4	3.4	1.7	1.0	2.7
19	8.0	1.2	5.7	0.3	6.0
20	15.0	3.3	10.7	1.0	11.7
21	20.2	4.5	14.4	1.3	15.7
22	30.8	0	21.9	0	21.9
23	9.3	0	6.6	0	6.6
24	7.0	5.0	5.0	1.4	6.4
25	4.0	23.1	2.8	6.7	9.5
26	3.2	0	2.3	0	2.3
27	1.0	10.9	0.7	3.1	3.8
28	7.6	13.5	5.4	3.9	9.3
29	9.2	8.0	6.6	2.3	8.9
30	0	4.3	0	1.2	1.2
31					
Total	190.0	137.4	135.3	39.6	174.9

TABLE 7-1 (4)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1970 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	4.0	0	2.8	0	2.8
4	6.2	0	4.4	0	4.4
5	11.4	0	8.1	0	8.1
6	6.0	0	4.3	0	4.3
7	8.2	93.1	5.8	26.8	32.6
8	9.5	0	6.8	0	6.8
9	14.0	0.7	10.0	0.2	10.2
10	0	8.2	0	2.4	2.4
11	0	3.7	0	1.1	1.1
12	0	53.8	0	15.5	15.5
13	0	3.2	0	0.9	0.9
14	11.7	6.5	8.3	1.9	10.2
15	8.2	0	5.8	0	5.8
16	8.7	0	6.2	0	6.2
17	0	1.7	0	0.5	0.5
18	0	1.3	0	0.4	0.4
19	16.2	14.3	11.5	4.1	15.6
20	22.0	0	15.7	0	15.7
21	9.2	0	6.6	0	6.6
22	3.1	0	2.2	0	2.2
23	10.0	1.0	7.1	0.3	7.4
24	0	0	0	0	0
25	0	0	0	0	0
26	0	13.5	0	3.9	3.9
27	0	16.7	0	4.8	4.8
28	0	0	0	0	0
29	0	1.1	0	0.3	0.3
30	0	9.1	0	2.6	2.6
31	0	4.7	0	1.4	1.4
Total	148.4	232.6	105.6	67.1	172.7

TABLE 7-1 (5)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1970 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	16.2	0	11.5	0	11.5
20	0	0	0	0	0
21	12.0	0	8.5	0	8.5
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	4.3	0	3.1	0	3.1
27	9.5	0	6.8	0	6.8
28	27.7	2.4	19.7	0.7	20.4
29	19.2	9.1	13.7	2.6	16.3
30	2.2	0.5	1.6	0.1	1.7
31					
Total	91.1	12.0	64.9	3.4	68.3

TABLE 7-1 (6)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1970 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	5.0	0	1.4	1.4
2	0	0.5	0	0.1	0.1
3	0	22.6	0	6.5	6.5
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	28.1	0	8.0	8.0

TABLE 7-1 (7)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR APR. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	12.6	0	3.6	3.6
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	10.2	0	7.3	0	7.3
10	6.5	0	4.6	0	4.6
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	34.2	0	9.8	9.8
16	0	17.9	0	5.2	5.2
17	0	0	0	0	0
18	0	0	0	0	0
19	0	4.0	0	1.2	1.2
20	0	38.5	0	11.1	11.1
21	0	0	0	0	0
22	0	0	0	0	0
23	9.4	0	6.7	0	6.7
24	0	13.6	0	3.9	3.9
25	0	0	0	0	0
26	18.0	0	12.8	0	12.8
27	0	0	0	0	0
28	0	16.1	0	4.6	4.6
29	0	0	0	0	0
30	0	0.3	0	0.1	0.1
31					
Total	44.1	137.2	31.4	39.5	70.9

TABLE 7-1 (8)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAY 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	2.0	1.7	1.4	0.5	1.9
2	0	0	0	0	
3	3.4	15.0	2.4	4.3	6.7
4	6.0	0	4.3	0	4.3
5	2.0	0.0	1.4	0.3	1.7
6	0	16.0	0	4.6	4.6
7	0	7.2	0	2.1	2.1
8	0	5.1	0	1.5	1.5
9	9.2	0	6.6	0	6.6
10	11.0	1.5	7.8	0.4	8.2
11	10.0	0	7.1	0	7.1
12	5.0	0	3.6	0	3.6
13	0	0	0	0	0
14	0	0	0	0	0
15	13.0	0	9.3	0	9.3
16	0	0	0	0	0
17	0	0.1	0	0	0
18	16.0	4.8	11.4	1.4	12.8
19	24.0	0.3	17.1	0.1	17.2
20	0	1.7	0	0.5	0.5
21	0	9.1	0	2.6	2.6
22	0	13.0	0	3.7	3.7
23	0	9.0	0	2.6	2.6
24	12.0	2.0	8.5	0.6	9.1
25	0	1.2	0	0.3	0.3
26	0	18.6	0	5.4	5.4
27	16.0	3.2	11.4	0.9	12.3
28	5.0	3.7	3.6	1.1	4.7
29	4.0	0	2.8	0	2.8
30	0	11.1	0	3.2	3.2
31	9.2	0	6.6	0	6.6
Total	147.8	125.2	105.3	36.1	141.4

TABLE 7-1 (9)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUN. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	8.2	0	5.8	0	5.8
2	10.4	0	7.4	0	7.4
3	6.1	4.4	4.3	1.3	5.6
4	9.0	0.3	6.4	0.1	6.5
5	5.0	0	3.6	0	3.6
6	11.0	1.2	7.8	0.3	8.1
7	7.7	0.7	5.5	0.2	5.7
8	0	0.5	0	0.1	0.1
9	4.8	2.2	3.4	0.6	4.0
10	7.3	3.1	5.2	0.9	6.1
11	9.2	5.4	6.6	1.6	8.2
12	6.6	8.2	4.7	2.4	7.1
13	0	0	0	0	0
14	0	0	0	0	0
15	10.0	5.8	7.1	1.7	8.8
16	8.1	0.6	5.8	0.2	6.0
17	0	0	0	0	0
18	0	0	0	0	0
19	2.2	0.1	1.6	0	1.6
20	21.3	0	15.2	0	15.2
21	0	7.5	0	2.2	2.2
22	16.0	0	11.4	0	11.4
23	0	2.4	0	0.7	0.7
24	12.0	0.2	8.5	0.1	8.6
25	0	2.5	0	0.7	0.7
26	0	0	0	0	0
27	0	0	0	0	0
28	0	2.5	0	0.7	0.7
29	0	3.1	0	0.9	0.9
30	0	15.3	0	4.4	4.4
31					
Total	154.9	66.0	110.3	19.1	129.4

TABLE 7-1 (10)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	1.5	0	0.4	0.4
2	0	1.5	0	0.4	0.4
3	0	5.4	0	1.6	1.6
4	0	7.2	0	2.1	2.1
5	0	3.4	0	1.0	1.0
6	0	3.8	0	1.1	1.1
7	0	2.3	0	0.7	0.7
8	0	0.9	0	0.3	0.3
9	0	0.6	0	0.2	0.2
10	0	3.9	0	1.1	1.1
11	18.0	5.9	12.8	1.7	14.5
12	20.0	5.0	14.2	1.4	15.6
13	0	0	0	0	0
14	0	4.3	0	1.2	1.2
15	0	0.8	0	0.2	0.2
16	0	0	0	0	0
17	0	0	0	0	0
18	23.0	0.6	16.4	0.2	16.6
19	10.0	1.9	7.1	0.5	7.6
20	10.5	5.9	7.5	1.7	9.2
21	0	1.7	0	0.5	0.5
22	0	0	0	0	0
23	35.5	1.4	25.3	0.4	25.7
24	27.7	4.8	19.7	1.4	21.1
25	9.7	7.1	6.9	2.0	8.9
26	9.0	0	6.4	0	6.4
27	0	6.8	0	2.0	2.0
28	0	2.5	0	0.7	0.7
29	0	5.8	0	1.7	1.7
30	0	0	0	0	0
31	0	0	0	0	0
Total	163.4	85.0	116.3	24.5	140.8

TABLE 7-1 (11)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	2.1	0	1.5	0	1.5
4	1.0	0	0.7	0	0.7
5	0	0	0	0	0
6	4.2	0	3.0	0	3.0
7	3.0	4.5	2.1	1.3	3.4
8	7.0	0.2	5.0	0.1	5.1
9	5.2	0	3.7	0	3.7
10	14.1	0	10.0	0	10.0
11	2.0	0	1.4	0	1.4
12	4.0	0	2.8	0	2.8
13	0	0	0	0	0
14	6.0	0	4.3	0	4.3
15	19.0	0	13.5	0	13.5
16	12.4	3.6	8.8	1.0	9.8
17	8.0	6.8	5.7	2.0	7.7
18	23.0	1.5	16.4	0.4	16.8
19	10.0	20.5	7.1	5.9	13.0
20	4.1	0	2.9	0	2.9
21	0	15.3	0	4.4	4.4
22	1.0	73.5	0.7	21.2	21.9
23	0	7.9	0	2.3	2.3
24	0	0.6	0	0.2	0.2
25	0	5.4	0	1.6	1.6
26	0	3.3	0	1.0	1.0
27	5.3	34.5	3.8	9.9	13.8
28	2.6	61.3	1.9	17.7	19.6
29	0	3.3	0	1.0	1.0
30	15.0	3.1	10.7	0.9	11.6
31	23.0	2.6	16.4	0.7	17.1
Total	172.0	247.9	122.4	71.6	194.0

TABLE 7-1 (12)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	13.0	6.8	9.3	2.0	11.3
2	0	1.0	0	0.3	0.3
3	0	4.8	0	1.4	1.4
4	54.0	0	38.4	0	38.4
5	0	0	0	0	0
6	0	0.8	0	0.2	0.2
7	0	0	0	0	0
8	0	14.6	0	4.2	4.2
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	6.5	0	1.9	1.9
14	0	0	0	0	0
15	0	52.9	0	15.2	15.2
16	14.0	0	10.0	0	10.0
17	19.7	4.9	14.0	1.4	15.4
18	6.5	77.9	4.6	22.4	27.0
19	2.0	9.0	1.4	2.6	4.0
20	0	0	0	0	0
21	0	1.2	0	0.3	0.3
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	1.9	0	0.5	0.5
27	0	4.0	0	1.2	1.2
28	0	17.2	0	5.0	5.0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	109.2	203.5	77.7	58.6	136.3

TABLE 7-1 (13)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0.5	0	0.1	0.1
3	0	1.8	0	0.5	0.5
4	0	0	0	0	0
5	0	4.1	0	1.2	1.2
6	0	0	0	0	0
7	30.0	4.3	21.4	1.2	22.6
8	0	0	0	0	0
9	0	61.1	0	17.6	17.6
10	0	0	0	0	0
11	0	16.6	0	4.8	4.8
12	0	3.0	0	0.9	0.9
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	2.7	0	0.8	0.8
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	17.9	0	5.2	5.2
27	0	28.6	0	8.2	8.2
28	0	0	0	0	0
29	0	39.1	0	11.3	11.3
30	0	0.6	0	0.2	0.2
31	0	0.3	0	0.1	0.1
Total	30.0	180.6	21.4	52.1	73.5

TABLE 7-1 (14)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	0	0	0	0	0

TABLE 7-1 (15)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1971 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	2.1	0	0.6	0.6
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	2.1	0	0.6	0.6

TABLE 7-1 (16)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JAN. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	0	0	0	0

TABLE 7-1 (17)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR FEB. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	16.2	0	11.5	0	11.5
19	4.0	0	2.8	0	2.8
20	0	0	0	0	0
21	9.3	0	6.6	0	6.6
22	0	15.8	0	4.6	4.6
23	0	7.2	0	2.1	2.1
24	0	0	0	0	0
25	0	10.2	0	2.9	2.9
26	0	2.7	0	0.8	0.8
27	0	0	0	0	0
28	0	5.5	0	1.6	1.6
29	0	0	0	0	0
30					
31					
Total	29.5	41.4	20.9	12.0	32.9

TABLE 7-1 (18)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAR. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	1.5	0	0.4	0.4
20	0	0	0	0	0
21	0	5.0	0	1.4	1.4
22	2.0	0	1.4	0	1.4
23	0	2.1	0	0.6	0.6
24	0	5.6	0	1.6	1.6
25	0	8.4	0	2.4	2.4
26	0	55.1	0	15.9	15.9
27	1.2	0	0.9	0	0.9
28	0	1.1	0	0.3	0.3
29	0	0	0	0	0
30	0	0.1	0	0	0
31	1.8	0	1.3	0	1.3
Total	5.0	78.9	3.6	22.6	26.2

TABLE 7-1 (19)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR APR. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	45.5	0	13.1	13.1
2	0	0	0	0	0
3	0	6.4	0	1.8	1.8
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	1.4	0	1.0	0	1.0
9	1.0	10.4	0.7	3.0	3.7
10	0	0	0	0	0
11	1.8	0	1.3	0	1.3
12	1.4	47.8	1.0	13.8	14.8
13	0	0	0	0	0
14	0	0	0	0	0
15	5.5	0	3.9	0	3.9
16	0	72.4	0	20.9	20.9
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	5.4	0	1.6	1.6
26	0	0	0	0	0
27	1.2	0	0.9	0	0.9
28	0	15.5	0	4.5	4.5
29	0	4.4	0	1.3	1.3
30	2.0	0.2	1.4	0.1	1.5
31					
Total	14.3	208.0	10.2	60.1	70.3

TABLE 7-1 (20)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAY 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	2.0	0	1.4	0	1.4
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	7.0	6.5	5.0	1.9	6.9
17	26.5	16.5	18.9	4.8	23.7
18	9.4	24.0	6.7	6.9	13.6
19	1.3	0.2	0.9	0.1	1.0
20	2.9	0.9	2.1	0.3	2.4
21	13.2	0	9.4	0	9.4
22	3.7	0.2	2.6	0.1	2.7
23	6.9	0	4.9	0	4.9
24	7.0	0	5.0	0	5.0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	1.0	0	0.7	0	0.7
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	80.9	48.3	57.6	14.1	71.7

TABLE 7-1 (21)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUN. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	3.0	3.8	2.1	1.1	3.2
2	19.0	22.0	13.5	6.3	19.8
3	34.2	0.4	24.4	0.1	24.5
4	0	0	0	0	0
5	10.7	20.2	7.6	5.8	13.4
6	25.7	4.7	18.3	1.4	19.7
7	1.0	6.9	0.7	2.0	2.7
8	4.0	19.6	2.8	5.6	8.4
9	3.0	10.4	2.1	3.0	5.1
10	1.0	0.2	0.7	0.1	0.8
11	28.0	5.1	19.9	1.5	21.4
12	1.8	10.0	1.3	2.9	4.2
13	0	0.8	0	0.2	0.2
14	0	0	0	0	0
15	0	0.4	0	0.1	0.1
16	0	0	0	0	0
17	6.4	0.8	4.6	0.2	4.8
18	1.4	2.3	1.0	0.7	1.7
19	10.3	1.5	7.3	0.4	7.7
20	2.2	19.2	1.6	5.5	7.1
21	0	0	0	0	0
22	5.1	0	3.6	0	3.6
23	0	0	0	0	0
24	0	0	0	0	0
25	0	1.7	0	0.5	0.5
26	5.9	0.4	4.2	0.1	4.3
27	0	2.1	0	0.6	0.6
28	13.8	0	9.8	0	9.8
29	1.0	0.6	0.7	0.2	0.9
30	0	0	0	0	0
31					
Total	177.5	133.1	126.2	38.3	164.5

TABLE 7-1 (22)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	1.0	0	0.7	0	0.7
2	3.4	0	2.4	0	2.4
3	7.2	0.5	5.1	0.1	5.2
4	0	1.5	0	0.4	0.4
5	20.5	1.5	14.6	0.4	15.0
6	1.2	2.9	0.9	0.8	1.7
7	0	0	0	0	0
8	1.2	0	0.9	0	0.9
9	7.4	0	5.3	0	5.3
10	10.3	0	7.3	0	7.3
11	19.4	0	13.8	0	13.8
12	15.1	7.3	10.8	2.1	12.9
13	11.9	12.3	8.5	3.5	12.0
14	5.1	4.2	3.6	1.2	4.8
15	17.0	0	12.1	0	12.1
16	9.7	1.7	6.9	0.5	7.4
17	3.7	0	2.6	0	2.6
18	0	0	0	0	0
19	4.5	0	3.2	0	3.2
20	10.1	0	7.2	0	7.2
21	2.9	0	2.1	0	2.1
22	2.5	0	1.8	0	1.8
23	39.5	0.2	28.1	0.1	28.2
24	7.1	3.2	5.1	0.9	6.0
25	8.9	5.9	6.3	1.7	8.0
26	30.4	0.6	21.6	0.2	21.8
27	13.3	4.5	9.5	1.3	10.8
28	19.9	0.4	14.2	0.1	14.3
29	34.2	3.2	24.4	0.9	25.3
30	26.3	0.6	18.7	0.2	18.9
31	2.5	15.6	1.8	4.5	6.3
Total	336.2	66.1	239.5	18.9	258.4

TABLE 7-1 (23)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	7.8	2.7	5.6	0.8	6.4
2	8.7	10.0	6.2	2.9	9.1
3	1.2	0.5	0.9	0.1	1.0
4	0	0	0	0	0
5	1.7	0	1.2	0	1.2
6	11.0	1.5	7.8	0.4	8.2
7	4.3	0.5	3.1	0.1	3.2
8	3.8	0	2.7	0	2.7
9	11.2	0	8.0	0	8.0
10	8.5	0.1	6.1	0	6.1
11	2.5	0.1	1.8	0	1.8
12	10.0	0	7.1	0	7.1
13	2.8	4.7	2.0	1.4	3.4
14	9.4	0	6.7	0	6.7
15	29.3	0	20.9	0	20.9
16	10.3	0	7.3	0	7.3
17	14.5	0	10.3	0	10.3
18	5.5	1.9	3.9	0.5	4.4
19	1.5	0	1.1	0	1.1
20	1.7	0	1.2	0	1.2
21	0	0	0	0	0
22	2.4	0	1.7	0	1.7
23	1.0	0	0.7	0	0.7
24	5.4	0	3.8	0	3.8
25	1.5	0	1.1	0	1.1
26	0	0	0	0	0
27	3.6	0	2.6	0	2.6
28	4.5	2.8	3.2	0.8	4.0
29	4.5	1.3	3.2	0.4	3.6
30	15.4	0	11.0	0	11.0
31	38.1	0	27.1	0	27.1
Total	222.1	26.1	158.3	7.4	165.7

TABLE 7-1 (24)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	15.8	1.1	11.2	0.3	11.5
2	2.0	0	1.4	0	1.4
3	0	0	0	0	0
4	0	0.5	0	0.1	0.1
5	14.3	5.4	10.2	1.6	11.8
6	13.0	15.3	9.3	4.4	13.7
7	8.1	80.3	5.8	23.1	28.9
8	7.8	66.0	5.6	19.0	24.6
9	0	8.0	0	2.3	2.3
10	0	0	0	0	0
11	8.5	3.0	6.1	0.9	7.0
12	3.8	0	2 7	0	2.7
13	0	0	0	0	0
14	3.5	1.3	2.5	0.4	2.9
15	0	0	0	0	0
16	0	0	0	0	0
17	5.0	0	3.6	0	3.6
18	14.5	5.0	10.3	1.4	11.7
19	3.0	130.9	2.1	37.7	39.8
20	3.6	2.7	2.6	0.8	3.4
21	0	20.5	0	5.9	5.9
22	0	0.4	0	0.1	0.1
23	10.0	0	7.1	0	7.1
24	5.0	1.5	3.6	0.4	4.0
25	38.0	17.0	27.1	4.9	32.0
26	17.0	26.7	12.1	7.7	19.8
27	47.0	5.3	33.5	1.5	35.0
28	7.0	24.2	5.0	7.0	12.0
29	19.0	12.0	13.5	3.5	17.0
30	0	0	0	0	0
31					
Total	245.9	427.1	175.3	123.0	298.3

TABLE 7-1 (25)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	10.0	46.7	7.1	13.4	20.5
2	0	0	0	0	0
3	9.0	0	6.4	0	6.4
4	8.5	9.0	6.1	2.6	8.7
5	1.5	28.0	1.1	8.1	9.2
6	0	3.2	0	0.9	0.9
7	0	0	0	0	0
8	1.0	0	0.7	0	0.7
9	5.2	0	3.7	0	3.7
10	0	0	0	0	0
11	3.5	2.8	2.5	0.8	3.3
12	0	0	0	0	0
13	5.0	0	3.6	0	3.6
14	27.2	5.1	19.4	1.5	20.9
15	2.5	18.9	1.8	5.4	7.2
16	6.0	1.6	4.3	0.5	4.8
17	0	0	0	0	0
18	3.0	0	2.1	0	2.1
19	0	1.1	0	0.3	0.3
20	8.3	18.0	5.9	5.2	11.1
21	1.0	0	0.7	0	0.7
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	2.4	0	0.7	0.7
27	0	6.6	0	1.9	1.9
28	0	0	0	0	0
29	0	0	0	0	0
30	2.0	0	1.4	0	1.4
31	0	0	0	0	0
Total	93.7	143.4	66.8	41.3	108.1

TABLE 7-1 (26)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	2.0	0	0.6	0.6
5	0	0	0	0	0
6	0	2.1	0	0.6	0.6
7	0	1.3	0	0.4	0.4
8	1.5	1.6	1.1	0.5	1.6
9	4.5	5.2	3.2	1.5	4.7
10	4.8	0	3.4	0	3.4
11	3.5	0	2.5	0	2.5
12	1.5	0	1.1	0	1.1
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	1.8	0	0.5	0.5
17	0	1.0	0	0.3	0.3
18	6.0	0	4.3	0	4.3
19	0	0.6	0	0.2	0.2
20	0	1.1	0	0.3	0.3
21	2.0	1.6	1.4	0.5	1.9
22	3.5	22.6	2.5	6.5	9.0
23	0	0	0	0	0
24	1.5	21.3	1.1	6.1	7.2
25	1.0	78.1	0.7	22.5	23.2
26	15.5	2.2	11.0	0.6	11.6
27	0	1.3	0	0.4	0.4
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	45.3	143.8	32.3	41.5	73.8

TABLE 7-1 (27)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1972 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	3 4	0	1.0	1.0
9	0	9.8	0	2.8	2.8
10	0	1.4	0	0.4	0.4
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0.5	0	0.1	0.1
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	55.7	0	39.7	0	39.7
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	55.7	15.1	39.7	4.3	44.0

TABLE 7-1 (28)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JAN. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	0	0	0	0

TABLE 7-1 (29)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR FEB. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30					
31					
Total	0	0	0	0	0

TABLE 7-1 (30)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAR. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	5.0	0	3.6	0	3.6
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	3.9	0	2.8	0	2.8
16	5.8	21.8	4.1	6.3	10.4
17	25.0	0	17.8	0	17.8
18	2.5	0	1.8	0	1.8
19	1.5	0	1.1	0	1.1
20	0	0	0	0	0
21	0	0.5	0	0.1	0.1
22	0	2.5	0	0.7	0.7
23	12.0	2.2	8.5	0.6	9.1
24	2.0	0	1.4	0	1.4
25	0	12.5	0	3.6	3.6
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0.2	0	0.1	0.1
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	57.7	39.7	41.1	11.4	52.5

TABLE 7-1 (31)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR APR. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	29.3	0	8.4	8.4
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	.0	0	0	0
19	0	68.0	0	19.6	19.6
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	1.0	0	0.3	0.3
28	0	0	0	0	0
29	0	0	0	0	0
30	51.7	0	36.8	0	36.8
31					
Total	51.7	98.3	36.8	28.3	65.1

TABLE 7-1 (32)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAY 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	3.5	0	2.5	0	2.5
2	5.6	9.5	4.0	2.7	6.7
3	9.9	34.0	7.0	9.8	16.8
4	5.5	3.6	3.9	1.0	4.9
5	5.8	0	4.1	0	4.1
6	9.8	0.3	7.0	0.1	7.1
7	2.1	0.4	1.5	0.1	1.6
8	0	0	0	0	0
9	0	0	0	0	0
10	6.7	0	4.8	0	4.8
11	0	0	0	0	0
12	1.2	18.3	0.9	5.3	6.2
13	2.8	0	2.0	0	2.0
14	5.4	0	3.8	0	3.8
15	3.3	6.0	2.3	1.7	4.0
16	1.1	0.7	0.8	0.2	1.0
17	2.2	0	1.6	0	1.6
18	0	0	0	0	0
19	0	4.0	0	1.2	1.2
20	0	0	0	0	0
21	8.6	0.7	6.1	0.2	6.3
22	1.2	2.1	0.9	0.6	1.5
23	4.8	6.0	3.4	1.7	5.1
24	1.8	0.4	1.3	0.1	1 4
25	5.5	5.4	3.9	1.6	5.5
26	0	3.5	0	1.0	1.0
27	2.3	0	1.6	0	1.6
28	0	0	0	0	0
29	0	23.5	0	6.8	6 8
30	0	4.0	0	1.2	1.2
31	9.0	0.8	6.4	0.2	6.6
Total	98.1	123.2	69.8	35.5	105.3

TABLE 7-1 (33)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUN. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	15.3	0	4.4	4.4
2	58.0	7.5	41.3	2.2	43.5
3	8.2	0	5.8	0	5.8
4	6.7	1.0	4.8	0.3	5.1
5	6.4	1.0	4.6	0.3	4.9
6	0	2.7	0	0.8	0.8
7	6.4	1.2	4.6	0.3	4.9
8	6.5	3.0	4.6	0.9	5.5
9	1.5	9.4	1.1	2.7	3.8
10	2.5	1.6	1.8	0.5	2.3
11	4.3	0	3.1	0	3.1
12	1.4	0	1.0	0	1.0
13	4.3	0	3.1	0	3.1
14	0	7.6	0	2.2	2.2
15	14.3	3.2	10.2	0.9	11.1
16	41.9	5.6	29.8	1.6	31.4
17	20.0	21.5	14.2	6.2	20.4
18	35.0	94.8	24.9	27.3	52.2
19	7.5	5.2	5.3	1.5	6.8
20	0	12.7	0	3.7	3.7
21	0	0	0	0	0
22	1.5	0	1.1	0	1.1
23	0	0	0	0	0
24	0	0	0	0	0
25	1.0	1.2	0.7	0.3	1.0
26	0	0	0	0	0
27	0	0	0	0	0
28	2.0	0	1.4	0	1.4
29	0	2.0	0	0.6	0.6
30	12.8	7.8	9.1	2.2	11.3
31					
Total	242.2	204.3	172.5	58.9	231.4

TABLE 7-1 (34)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0.5	0	0.1	0.1
2	0	0	0	0	0
3	7.0	0	5.0	0	5.0
4	4.8	0	3.4	0	3.4
5	11.2	3.2	8.0	0.9	8.9
6	3.6	4.0	2.6	1.2	3.8
7	17.8	10.8	12.7	3.1	15.8
8	4.3	0	3.1	0	3.1
9	67.5	0	48.1	0	48.1
10	21.1	2.2	15.0	0.6	15.6
11	1.3	0	0.9	0	0.9
12	2.4	0	1.7	0	1.7
13	3.2	5.5	2.3	1.6	3.9
14	5.7	0.4	4.1	0.1	4.2
15	17.4	0	12.4	0	12.4
16	5.6	0	4.0	0	4.0
17	6.2	6.3	4.4	1.8	6.2
18	5.1	3.0	3.6	0.9	4.5
19	4.7	0.4	3.3	0.1	3.4
20	0	1.0	0	0.3	0.3
21	18.0	0.9	12.8	0.3	13.1
22	1.0	0	0.7	0	0 7
23	7.4	0	5.3	0	5.3
24	1.0	0	0.7	0	0.7
25	0	0	0	0	0
26	6.8	0	4.8	0	4.8
27	67.7	24.6	48.2	7.1	55.3
28	25.5	0	18.2	0	18.2
29	5.5	1.8	3 9	0.5	4.4
30	7.8	3.4	5 6	1.0	6 6
31	67.7	9.0	48.2	2.6	50.8
Total	397.3	77.0	283.0	22.2	305 2

TABLE 7-1 (35)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	9.0	0	6.4	0	6.4
2	0	1.8	0	0.5	0.5
3	26.2	1.2	18.7	0.3	19.0
4	1.0	6.3	0.7	1.8	2.5
5	22.0	0	15.7	0	15.7
6	4.4	0	3.1	0	3.1
7	4.5	4.1	3.2	1.2	4.4
8	16.3	12.4	11.6	3.6	15.2
9	9.9	0	7.0	0	7.0
10	8.6	2.0	6.1	0.6	6.7
11	30.5	0	21.7	0	21.7
12	6.2	0	4.4	0	4.4
13	2.2	0	1.6	0	1.6
14	0	0	0	0	0
15	0	2.9	0	0.8	0.8
16	5.5	0	3.9	0	3.9
17	2.5	0	1.8	0	1.8
18	12.4	1.3	8.8	0.4	9.2
19	3.3	2.0	2.3	0.6	2.9
20	8.3	0	5.9	0	5.9
21	0	3.8	0	1.1	1.1
22	8.3	2.0	5.9	0.6	6.5
23	25.2	1.2	17.9	0.3	18.2
24	14.3	0.6	10.2	0.2	10.4
25	14.6	6.8	10.4	2.0	12.4
26	8.0	1.2	5.7	0.3	6.0
27	24.1	0	17.2	0	17.2
28	33.1	1.8	23.6	0.5	24.1
29	5.5	2.4	3.9	0.7	4.6
30	3.2	8.2	2.3	2.4	4.7
31	4.2	8.5	3.0	2.4	5.4
Total	313.3	70.5	223.0	20.3	243.3

TABLE 7-1 (36)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	11.0	0	7.8	0	7.8
2	1.5	1.4	1.1	0.4	1.5
3	3.3	4.0	2.3	1.2	3.5
4	0	0	0	0	0
5	0	1.0	0	0.3	0.3
6	4.5	0	3.2	0	3.2
7	9.8	0	7.0	0	7.0
8	1.0	2.0	0.7	0.6	1.3
9	2.5	4.2	1.8	1.2	3.0
10	1.5	4.2	1.1	1.2	2.3
11	0	0.2	0	0.1	0.1
12	15.5	12.8	11.0	3.7	14.7
13	0	15.8	0	4.6	4.6
14	10.0	1.1	7.1	0.3	7.4
15	8.9	8.0	6.3	2.3	8.6
16	15.7	19.5	11.2	5.6	16.8
17	17.4	0.4	12.4	0.1	12.5
18	14.5	40.0	10.3	11.5	21.8
19	4.8	17.0	3.4	4.9	8.3
20	6.3	11.4	4.5	3.3	7.8
21	3.8	19.0	2.7	5.5	8.2
22	1.6	2.5	1.1	0.7	1.8
23	29.3	0	20.9	0	20.9
24	0	26.0	0	7.5	7.5
25	6.5	0.3	4.6	0.1	4 7
26	0	0	0	0	0
27	11.0	15.0	7.8	4.3	12.1
28	4.0	0	2.8	0	2 8
29	9.2	44.6	6.6	12.8	19.4
30	16.3	3.0	11.6	0.9	12.5
31					
Total	209.9	253.4	149.3	73.1	222.4

TABLE 7-1 (37)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	12.5	0	3.6	3.6
2	0	8.8	0	2.5	2.5
3	2.3	0 3	1.6	0.1	1.7
4	0	18.8	0	5.4	5.4
5	27.1	45.0	19.3	13.0	32.3
6	0	15.6	0	4.5	4.5
7	0	0	0	0	0
8	3.5	0	2.5	0	2.5
9	12.0	25 8	8.5	7.4	15.9
10	0	19.0	0	5.5	5.5
11	0	0	0	0	0
12	0	12.7	0	3.7	3.7
13	0	0	0	0	0
14	0	0 3	0	0.1	0 1
15	0	0.4	0	0.1	0.1
16	8.5	0	6.1	0	6 1
17	0	0.5	0	0.1	0.1
18	0	1.0	0	0.3	0.3
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	4.5	0	3 2	0	3 2
27	0	0.8	0	0.2	0.2
28	0	4.5	0	1.3	1 3
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	57.9	166.0	41.2	47.8	89.0

TABLE 7-1 (38)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	6.4	0	1.8	1.8
12	10.2	5.0	7.3	1.4	8.7
13	0	12.5	0	3.6	3.6
14	0	3.0	0	0.9	0.9
15	0	0.8	0	0.2	0.2
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	3.2	0	0.9	0.9
20	0	7.4	0	2.1	2.1
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	10.2	38.3	7.3	10.9	18.2

TABLE 7-1 (39)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1973 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	1.0	0	0.3	0.3
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	1.0	0	0.3	0.3

TABLE 7-1 (40)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JAN. 1974 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	0	0	0	0

TABLE 7-1 (41)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR FEB. 1974 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	3.5	0	1.0	1.0
20	0	0	0	0	0
21	0	25.0	0	7.2	7.2
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30					
31					
Total	0	28.5	0	8.2	8.2

TABLE 7-1 (42)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAR. 1974 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	3.0	0	0.9	0.9
9	0	0	0	0	0
10	0	1.7	0	0.5	0.5
11	0	12.0	0	3.5	3.5
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0.5	0	0.1	0.1
16	0	2.5	0	0.7	0.7
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	11.0	0	3.2	3.2
22	0	0.9	0	0.3	0.3
23	0	0	0	0	0
24	0	0.5	0	0.1	0.1
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	1.7	0	0.5	0.5
30	0	14.2	0	4.1	4.1
31	0	8.5	0	2.4	2.4
Total	0	56.5	0	16.3	16.3

TABLE 7-1 (43)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR APR. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	15.7	0	4.5	4.5
2	T	0	0	0	0
3	6.8	1.6	4.8	0.5	5.3
4	T	0	0	0	0
5	1.0	0	0.7	0	0.7
6	0	0.7	0	0.2	0.2
7	0	0	0	0	0
8	0	19.9	0	5.7	5.7
9	0	0	0	0	0
10	T	0	0	0	0
11	T	0	0	0	0
12	0	0	0	0	0
13	0	20.0	0	5.8	5.8
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	2.3	0	1.6	0	1.6
22	7.3	4.2	5.2	1.2	6.4
23	5.5	0.7	3.9	0.2	4.1
24	0.3	4.9	0.2	1.4	1.6
25	T	0	0	0	0
26	T	0	0	0	0
27	13.6	0	9.7	0	9.7
28	15.8	3.1	11.2	0.9	12.1
29	3.4	33.2	2.4	9.6	12.0
30	0.3	0.2	0.2	0.1	0.3
31					
Total	56.3	104.2	39.9	30.1	70.0

TABLE 7-1 (44)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAY 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	6.3	12.0	4.5	3.5	8.0
2	7.4	18.8	5.3	5.4	10.7
3	0.8	4.7	0.6	1.4	2.0
4	T	T	0	0	0
5	17.3	2.5	12.3	0.7	13.0
6	87.7	46.7	62.4	13.4	75.8
7	18.6	31.6	13.2	9.1	22.3
8	8.0	26.8	5.7	7.7	13.4
9	T	13.2	0	3.8	3.8
10	0.3	0	0.2	0	0.2
11	T	0	0	0	0
12	3.7	7.0	2.6	2.0	4.6
13	1.7	4.3	1.2	1.2	2.4
14	0.4	0	0.3	0	0.3
15	0	T	0	0	0
16	17.5	20.1	12.5	5.8	18.3
17	T	0	0	0	0
18	0	0.2	0	0.1	0.1
19	T	35.9	0	10.3	10.3
20	11.0	46.5	7.8	13.4	21.2
21	2.2	23.1	1.6	6.7	8.3
22	18.6	8.2	13.2	2.4	15.6
23	5.9	17.3	4.2	5.0	9.2
24	2.4	19.2	1.7	5.5	7.2
25	4.1	0.3	2.9	0.1	3.0
26	1.4	18.5	1.0	5.3	6.3
27	9.1	3.5	6.5	1.0	7.5
28	4.2	4.7	3.0	1.4	4.4
29	1.9	1.1	1.4	0.3	1.7
30	4.9	0.3	3.5	0.1	3.6
31	3.6	0.9	2.6	0.3	2.9
Total	239.0	367.4	170.2	105.9	276.1

TABLE 7-1 (45)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUN. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	1.5	4.3	1.1	1.2	2.3
2	1.9	T	1.4	0	1.4
3	10.1	1.0	7.2	0.3	7.5
4	8.3	1.2	5.9	0.3	6.2
5	0.8	6.2	0.6	1.8	2.4
6	9.3	0.2	6.6	0.1	6.7
7	3.2	0	2.3	0	2.3
8	T	T	0	0	0
9	T	0	0	0	0
10	0.5	0	0.4	0	0.4
11	1.1	0	0.8	0	0.8
12	0.9	0	0.6	0	0.6
13	1.5	0	1.1	0	1.1
14	T	T	0	0	0
15	3.2	0	2.3	0	2.3
16	T	1.1	0	0.3	0.3
17	5.1	0	3.6	0	3.6
18	1.8	0.9	1.3	0.3	1.6
19	1.3	T	0.9	0	0.9
20	T	0	0	0	0
21	0.8	0	0.6	0	0.6
22	12.4	T	8.8	0	8.8
23	1.2	0	0.9	0	0.9
24	5.9	0	4.2	0	4.2
25	1.4	0	1.0	0	1.0
26	4.9	0	3.5	0	3.5
27	11.0	0.3	7.8	0.1	7.9
28	2.7	7.4	1.9	2.1	4.0
29	2.1	0	1.5	0	1.5
30	11.6	0	8.3	0	8.3
31					
Total	104.5	22.6	74.6	6.5	81.1

TABLE 7-1 (46)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	11.1	4.9	7.9	1.4	9.3
2	8.7	5.0	6.2	1.4	7.6
3	7.6	4.7	5.4	1.4	6.8
4	8.2	0.9	5.8	0.3	6.1
5	5.5	0.3	3.9	0.1	4.0
6	9.6	1.6	6.8	0.5	7.3
7	0.3	0.6	0.2	0.2	0.4
8	1.5	T	1.1	0	1.1
9	5.3	0.3	3.8	0.1	3.9
10	4.7	0	3.3	0	3.3
11	12.0	0	8.5	0	8.5
12	20.9	0	14.9	0	14.9
13	5.5	T	3.9	0	3.9
14	0	T	0	0	0
15	0.7	0	0.5	0	0.5
16	T	0	0	0	0
17	9.8	0.3	7.0	0.1	7.1
18	18.1	2.7	12.9	0.8	13.7
19	1.6	2.6	1 1	0.7	1.8
20	T	2.8	0	0.8	0.8
21	8.5	0.1	6.1	0	6.1
22	5.2	9.0	3.7	2.6	6.3
23	15.6	0.4	11.1	0.1	11 2
24	6 4	0	4.6	0	4.6
25	6.1	0	4.3	0	4.3
26	1.8	1.2	1.3	0.3	1.6
27	1.0	1.0	0.7	0.3	1.0
28	4.8	0	3.4	0	3.4
29	10.2	0	7.3	0	7.3
30	8.0	6.7	5.7	1.9	7.6
31	1.0	5.2	0.7	1.5	2.2
Total	199.7	50.3	142.1	14.5	156.6

TABLE 7-1 (47)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	4.0	1.2	2.8	0.3	3.1
2	7.8	0.5	5.6	0.1	5.7
3	5.4	2.1	3.8	0.6	4.4
4	5.9	0.9	4.2	0.3	4.5
5	10.3	0	7.3	0	7.3
6	0.9	T	0.6	0	0.6
7	0.5	0.4	0.4	0.1	0.5
8	5.0	2.1	3.6	0.6	4.2
9	13.5	2.7	9.6	0.8	10.4
10	7.9	4.7	5.6	1.4	7.0
11	14.7	0.6	10.5	0.2	10.7
12	17.4	6.2	12.4	1.8	14.2
13	4.4	2.4	3.1	0.7	3.8
14	1.2	1.2	0.9	0.3	1.2
15	2.0	0.1	1.4	0	1.4
16	1.5	1.0	1.1	0.3	1.4
17	0	0.1	0	0	0
18	10.7	12.7	7.6	3.7	11.3
19	18.0	0.3	12.8	0.1	12.9
20	10.6	0.9	7.5	0.3	7.8
21	11.8	1.6	8.4	0.5	8.9
22	9.1	1.6	6.5	0.5	7.0
23	7.2	4.7	5.1	1.4	6.5
24	6.9	3.6	4.9	1.0	5.9
25	1.3	5.7	0.9	1.6	2.5
26	11.9	2.6	8.5	0.7	9.2
27	13.3	3.1	9.5	0.9	10.4
28	19.0	8.9	13.5	2.6	16.1
29	3.8	3.7	2.7	1.1	3.8
30	4.9	24.2	3.5	7.0	10.5
31	14.5	2.7	10.3	0.8	11.1
Total	245.4	102.5	174.6	29.7	204.3

TABLE 7-1 (48)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	1.9	4.9	1.4	1.4	2.8
2	0.8	6.6	0.6	1.9	2.5
3	2.3	12.3	1.6	3.5	5.1
4	0	30.0	0	8.6	8.6
5	32.8	12.5	23.4	3.6	27.0
6	16.2	21.8	11.5	6.3	17.8
7	1.5	18.5	1.1	5.3	6.4
8	11.9	1.2	8.5	0.3	8.8
9	T	4.7	0	1.4	1.4
10	8.8	0.6	6.3	0.2	6.5
11	1.1	0	0.8	0	0.8
12	11.3	0	8.0	0	8.0
13	3.2	7.3	2.3	2.1	4.4
14	1.0	6.3	0.7	1.8	2.5
15	T	T	0	0	0
16	18.9	0	13.5	0	13.5
17	4.5	4.2	3.2	1.2	4.4
18	40.6	T	28.9	0	28.9
19	20.2	10.0	14.4	2.9	17.3
20	2.0	9.2	1.4	2.6	4.0
21	31.5	T	22.4	0	22.4
22	22.3	T	15.9	0	15 9
23	6.4	2.6	4.6	0.7	5.3
24	3.7	0	2.6	0	2.6
25	5.4	T	3.8	0	3.8
26	3.3	0	2.3	0	2.3
27	T	17.3	0	5.0	5.0
28	0	2.7	0	0 8	0.8
29	7.3	0	5.2	0	5 2
30	0	0	0	0	0
31					
Total	258.9	172.7	184.4	49.6	234 0

TABLE 7-1 (49)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	3.4	21.1	2.4	6.1	8.5
2	0	7.0	0	2.0	2.0
3	6.5	0.3	4.6	0.1	4.7
4	0.7	23.8	0.5	6.9	7.4
5	0.3	1.8	0.2	0.5	0.7
6	0	0	0	0	0
7	0	T	0	0	0
8	0	0	0	0	0
9	8.5	56.0	6.1	16.1	22.2
10	0.3	5.6	0.2	1.6	1.8
11	0	7.0	0	2.0	2.0
12	0	0	0	0	0
13	0	3.6	0	1.0	1.0
14	0	2.9	0	0.8	0.8
15	0	3.0	0	0.9	0.9
16	0	2.0	0	0.6	0.6
17	0	0.5	0	0.1	0.1
18	29.8	5.0	21.2	1.4	22.6
19	4.7	1.1	3.3	0.3	3.6
20	0.4	3.8	0.3	1.1	1.4
21	1.2	24.6	0.9	7.1	8.0
22	4.3	1.0	3.1	0.3	3.4
23	0	1.1	0	0.3	0.3
24	0	0.2	0	0.1	0.1
25	11.5	0	8.2	0	8.2
26	13.4	14.8	9.5	4.3	13.8
27	0	50.8	0	14.6	14.6
28	0	0.3	0	0.1	0.1
29	0	0	0	0	0
30	3.5	25.5	2.5	7.3	9.8
31	8.0	0.1	5.7	0	5.7
Total	96.5	262.9	68.7	75.6	144.3

TABLE 7-1 (50)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	6.5	24.5	4.6	7.1	11.7
2	0	35.0	0	10.1	10.1
3	0	1.5	0	0.4	0.4
4	0	0.7	0	0.2	0.2
5	0	7.5	0	2.2	2.2
6	T	1.4	0	0.4	0.4
7	0.1	T	0.1	0	0.1
8	T	0	0	0	0
9	0	9.3	0	2.7	2.7
10	1.5	0 3	1.1	0.1	1.2
11	T	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	8.1	80.2	5.8	23.2	29

TABLE 7-1 (51)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1976 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	T	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	18.2	0	13.0	0	13.0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	18.2	0	13.0	0	13.0

TABLE 7-1 (52)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR APR. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	21.3	T	15.2	0	15.2
2	T	0	0	0	0
3	T	10.3	0	3.0	3.0
4	0	0	0	0	0
5	T	0	0	0	0
6	T	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0.6	0	0.4	0	0.4
10	0	0	0	0	0
11	0	0	0	0	0
12	T	0	0	0	0
13	T	0	0	0	0
14	0	0	0	0	0
15	19.1	0	13.6	0	13.6
16	0.3	0	0.2	0	0.2
17	13.2	4.6	9.4	1.3	10.7
18	3.2	0	2.3	0	2.3
19	28.8	0	20.5	0	20.5
20	12.5	6.4	8.9	1.8	10 7
21	14.9	0	10 6	0	10 6
22	0	0	0	0	0
23	0	0	0	0	0
24	0.9	3.3	0.6	1.0	1.6
25	0	25.0	0	7.2	7.2
26	0	1.6	0	0 5	0 5
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	114.8	51 2	81.7	14.8	96.5

TABLE 7-1 (53)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAY 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	T	0	0	0	0
2	18.7	37.6	13.3	10.8	24.1
3	30.8	0 8	21.9	0.2	22.1
4	0.3	0.6	0 2	0.2	0 4
5	0 4	0	0.3	0	0.3
6	13.5	5.0	9.6	1.4	11.0
7	0.3	0.2	0.2	0 1	0.3
8	4.7	T	3.3	0	3.3
9	12.9	0	9.2	0	9.2
10	5.5	0	3.9	0	3.9
11	8.8	0	6.3	0	6.3
12	3.3	11.0	2.3	3.2	5.5
13	T	0	0	0	0
14	0.4	0	0.3	0	0.3
15	0	0	0	0	0
16	1.0	0	0.7	0	0.7
17	0.4	0	0.3	0	0.3
18	6.2	2 5	4.4	0.7	5.1
19	7.8	0.8	5.6	0.2	5.8
20	0	T	0	0	0
21	4.5	0	3.2	0	3.2
22	T	0	0	0	0
23	8.7	0	6.2	0	6 2
24	46.1	12.8	32.8	3.7	36.5
25	10.1	0.4	7.2	0.1	7.3
26	T	0	0	0	0
27	5.9	0	4.2	0	4.2
28	1.2	0	0.9	0	0.9
29	3.9	0	2.8	0	2.8
30	4.6	1.8	3.3	0.5	3.8
31	4.4	1.1	3.1	0.3	3.4
Total	204.4	74.6	145.5	21.4	166.9

TABLE 7-1 (54)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUN. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	1.5	6.4	1.1	1.8	2.9
2	3.2	2.3	2.3	0.7	3.0
3	1.7	4.9	1.2	1.4	2.6
4	0.2	6.4	0 1	1.8	1.9
5	0	0 2	0	0.1	0.1
6	0	0	0	0	0
7	0	0	0	0	0
8	0	28.9	0	8.3	8.3
9	0	0	0	0	0
10	T	0.2	0	0.1	0.1
11	2.2	8.3	1.6	2.4	4.0
12	0	1.0	0	0.3	0.3
13	T	0.1	0	0	0
14	0.3	0	0.2	0	0 2
15	1.8	0	1.3	0	1.3
16	0.8	0	0.6	0	0.6
17	T	0	0	0	0
18	0	0	0	0	0
19	1.3	0	0 9	0	0.9
20	1.1	0	0.8	0	0 8
21	2.8	0	2.0	0	2.0
22	1.7	0 1	1 2	0	1 2
23	0.2	0.4	0.1	0.1	0.2
24	7.6	0	5.4	0	5.4
25	1.7	0	1.2	0	1.2
26	12.4	3.2	8.8	0.9	9.7
27	T	0	0	0	0
28	12.2	0	8.7	0	8.7
29	3.5	0	2.5	0	2 5
30	0.3	2.0	0 2	0 6	0 8
31					
Total	56.5	64.4	40.2	18.5	58 7

TABLE 7-1 (55)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	2.0	2.1	1.4	0.6	2.0
2	4.7	0	3.3	0	3.3
3	8.1	1.2	5.8	0.3	6.1
4	19.0	1.2	13.5	0.3	13.8
5	6.1	12.3	4.3	3.5	7.8
6	2.7	0.5	1.9	0.1	2.0
7	0.5	0.4	0.4	0.1	0.5
8	0	0.7	0	0.2	0.2
9	T	0.3	0	0.1	0.1
10	2.6	0	1.9	0	1.9
11	T	4.2	0	1.2	1.2
12	4.0	0	2.8	0	2.8
13	3.4	7.6	2.4	2.2	4.6
14	1.9	0	1.4	0	1.4
15	7.4	5.3	5.3	1.5	6.8
16	14.6	16.5	10.4	4.8	15.2
17	3.3	4.5	2.3	1.3	3.6
18	47.0	3.2	33.5	0.9	34.4
19	3.7	2.3	2.6	0.7	3.3
20	3.0	0	2.1	0	2.1
21	2.8	0	2.0	0	2.0
22	4.0	1.1	2.8	0.3	3.1
23	10.3	6.7	7.3	1.9	9.2
24	3.2	6.2	2.3	1.8	4.1
25	1.7	0.7	1.2	0.2	1.4
26	1.6	0	1.1	0	1.1
27	19.6	0	14.0	0	14.0
28	12.7	T	9.0	0	9.0
29	8.8	6.3	6.3	1.8	8.1
30	22.8	9.2	16.2	2.6	18.8
31	2.1	2.2	1.5	0.6	2.1
Total	223.6	94.7	159.0	27.0	186.0

TABLE 7-1 (56)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	2.2	T	1.6	0	1.6
2	8.7	0	6.2	0	6.2
3	13.4	0.3	9.5	0.1	9.6
4	14.4	0.5	10.3	0.1	10.4
5	3.9	0.7	2.8	0.2	3.0
6	T	1.2	0	0.3	0.3
7	3.9	0.7	2.8	0.2	3.0
8	2.9	0	2.1	0	2.1
9	T	22.5	0	6.5	6.5
10	4.1	0.4	2.9	0.1	3.0
11	1.1	0.7	0.8	0.2	1.0
12	0.7	0	0.5	0	0.5
13	2.5	T	1.8	0	1.8
14	0.1	0	0.1	0	0.1
15	2.5	0	1.8	0	1.8
16	3.2	1.0	2.3	0.3	2.6
17	2.5	0	1.8	0	1.8
18	2.1	0	1.5	0	1.5
19	10.2	0.3	7.3	0.1	7.4
20	19.3	0	13.7	0	13.7
21	1.7	8.4	1.2	2.4	3.6
22	3.5	0.2	2.5	0.1	2.6
23	12.4	0	8.8	0	8 8
24	10.8	0.8	7.7	0.2	7.9
25	31.6	4.6	22.5	1.3	23.8
26	0.5	14.0	0.4	4.0	4.4
27	0.5	0	0.4	0	0.4
28	2.4	0	1.7	0	1.7
29	1.5	0	1.1	0	1.1
30	T	0	0	0	0
31	1.0	13.2	0.7	3.8	4.5
Total	163.6	69.5	116.8	19.9	136.7

TABLE 7-1 (57)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	28.1	0.4	20.0	0.1	20.1
2	0	10.1	0	2.9	2.9
3	0.8	0.2	0.6	0.1	0.7
4	1.8	1.7	1.3	0.5	1.8
5	29.9	9.1	21.3	2.6	23.9
6	15.9	10.3	11.3	3.0	14.3
7	0.7	1.3	0.5	0.4	0.9
8	7.7	2.0	5.5	0.6	6.1
9	2.1	4.0	1.5	1.2	2.7
10	16.7	15.7	11.9	4.5	16.4
11	3.4	0.6	2.4	0.2	2.6
12	21.9	5.7	15.6	1.6	17.2
13	0	1.6	0	0.5	0.5
14	5.7	0	4.1	0	4.1
15	0.9	1.4	0.6	0.4	1.0
16	0.1	20.8	0.1	6.0	6.1
17	4.2	0	3.0	0	3.0
18	0	0.8	0	0.2	0.2
19	22.2	3.0	15.8	0.9	16.7
20	2.7	T	1.9	0	1.9
21	22.9	10.3	16.3	3.0	19.3
22	17.6	1.6	12.5	0.5	13.0
23	0	53.5	0	15.4	15.4
24	0	2.0	0	0.6	0.6
25	0	0	0	0	0
26	1.1	6.5	0.8	1.9	2.7
27	0	0.2	0	0.1	0.1
28	T	13.0	0	3.7	3.7
29	2.5	6.1	1.8	1.8	3.6
30	0	1.0	0	0.3	0.3
31					
Total	208.9	182.9	148.8	53.0	201.8

TABLE 7-1 (58)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0.2	0	0.1	0.1
2	4.2	0	3.0	0	3.0
3	0.8	0.2	0.6	0.1	0.7
4	T	0	0	0	0
5	1.6	0	1.1	0	1.1
6	13.3	T	9.5	0	9.5
7	1.7	34.3	1.2	9.9	11.1
8	0	2.8	0	0.8	0.8
9	0	3.8	0	1.1	1.1
10	0	1.3	0	0.4	0.4
11	4.9	0.1	3.5	0	3.5
12	0	0	0	0	0
13	4.4	0.2	3.1	0 1	3.2
14	T	0	0	0	0
15	8.8	T	6.3	0	6.3
16	5.2	T	3.7	0	3.7
17	0	0.7	0	0.2	0.2
18	0	0	0	0	0
19	0.2	0	0.1	0	0.1
20	1.0	0	0.7	0	0.7
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	14.4	0	10.3	0	10 3
25	3.9	0	2.8	0	2.8
26	0.6	5.4	0.4	1.6	2 0
27	T	1.5	0	0.4	0 4
28	1.5	4.7	1.1	1.4	2.5
29	0	0	0	0	0
30	1.7	1.8	1 2	0.5	1.7
31	3.3	4.0	2.3	1.2	3 5
Total	71.5	61.0	50.9	17.8	68.7

TABLE 7-1 (59)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	T	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	29.2	0	20.8	0	20.8
7	T	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	T	32.5	0	9.4	9.4
28	0.2	19.0	0.1	5.5	5.6
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	29.4	51.5	20.9	14.9	35.8

TABLE 7-1 (60)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1977 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	T	0	0	0	0
18	0	0	0	0	0
19	T	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	2.1	0	1.5	0	1.5
26	0	T	0	0	0
27	0	0	0	0	0
28	0.2	0	0.1	0	0.1
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	2.3	0	1.6	0	1.6

TABLE 7-1 (61)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR APR. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	T	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	T	0	0	0
9	0	0	0	0	0
10	T	0	0	0	0
11	45.1	13.8	32.1	4.0	36.1
12	T	54.9	0	15.8	15.8
13	0.2	1.2	0.1	0.3	0.4
14	0.3	13.7	0.2	3.9	4.1
15	0	0	0	0	0
16	0	0	0	0	0
17	T	0	0	0	0
18	T	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	T	0	0	0	0
22	0	0	0	0	0
23	0	14.4	0	4.1	4.1
24	0	11.3	0	3.3	3.3
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	45.5	109.3	32.4	31.4	63.8

TABLE 7-1 (62)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR MAY 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	22.3	0	15.9	0	15.9
2	0	40.2	0	11.6	11.6
3	0	0	0	0	0
4	0	1.3	0	0.4	0.4
5	0	0	0	0	0
6	T	0	0	0	0
7	49.7	1.0	35.4	0.3	35.7
8	1.2	0	0.9	0	0.9
9	10.9	0	7.8	0	7.8
10	T	0	T	0	0
11	5.1	12.6	3.6	3.6	7.2
12	0	8.5	0	2.4	2.4
13	T	2.4	0	0.7	0.7
14	0	10.6	0	3.1	3 1
15	6.0	0.4	4.3	0.1	4.4
16	4.5	19 2	3.2	5.5	8.7
17	5.8	3.3	4.1	1.0	5.1
18	24.7	0 1	17.6	0	17.6
19	5.4	12.0	3.8	3.5	7.3
20	0	0	0	0	0
21	T	0	0	0	0
22	15.7	0	11.2	0	11.2
23	2.8	0.5	2.0	0.1	2.1
24	T	14.0	0	4.0	4.0
25	36.1	0	25.7	0	25.7
26	24.9	0.3	17.7	0.1	17.8
27	13.3	0.4	9.5	0.1	9.6
28	0	1.5	0	0.4	0.4
29	13.1	0	9.3	0	9.3
30	0.2	5.0	0.1	1.4	1.5
31	3.1	0	2.2	0	2.2
Total	244.8	133.3	174.3	38.3	212.6

TABLE 7-1 (63)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUN. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	2.1	0	1.5	0	1.5
2	T	2.0	0	0.6	0.6
3	0.9	0.1	0.6	0	0.6
4	0.5	3.2	0.4	0.9	1.3
5	1.8	0	1.3	0	1.3
6	0.4	T	0.3	0	0.3
7	5.1	T	3.6	0	3.6
8	19.9	0.5	14.2	0.1	14.3
9	9.6	0	6.8	0	6.8
10	3.9	8.5	2.8	2.4	5.2
11	T	6.6	0	1.9	1.9
12	2.9	6.6	2.1	1.9	4.0
13	13.0	29.5	9.3	8.5	17.8
14	2.7	0	1.9	0	1.9
15	26.6	2.0	18.9	0.6	19.5
16	1.7	T	1.2	0	1.2
17	2.2	T	1.6	0	1.6
18	1.1	1.3	0.8	0.4	1.2
19	4.5	0	3.2	0	3.2
20	3.7	0.5	2.6	0.1	2.7
21	0	0	0	0	0
22	12.6	0	9.0	0	9.0
23	3.2	0.8	2.3	0.2	2.5
24	T	0.4	0	0.1	0.1
25	0.1	0	0.1	0	0.1
26	15.6	0.3	11.1	0.1	11.2
27	20.3	0.1	14.5	0	14.5
28	3.0	5.0	2.1	1.4	3.5
29	0.6	0	0.4	0	0.4
30	1.4	0	1.0	0	1.0
31					
Total	159.4	67.4	113.6	19.2	132.8

TABLE 7-1 (64)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR JUL. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	5.4	0	3.8	0	3.8
2	6.5	0	4.6	0	4.6
3	19.8	0.2	14.1	0.1	14.2
4	2.7	2.9	1.9	0.8	2.7
5	5.0	0.8	3.6	0.2	3.8
6	2.3	10.6	1.6	3.1	4.7
7	6.7	0	4.8	0	4.8
8	1.3	8.3	0.9	2.4	3.3
9	17.3	10.2	12.3	2.9	15.2
10	5.1	4.7	3.6	1.4	5.0
11	1.7	4.2	1.2	1.2	2.4
12	T	0	0	0	0
13	1.9	0.3	1.4	0.1	1.5
14	1.2	44.5	0.9	12.8	13.7
15	7.0	66.3	5.0	18.8	23.8
16	0.5	1.4	0.4	0.4	0.8
17	0	0	0	0	0
18	3.3	0	2.3	0	2.3
19	0.1	0	0.1	0	0.1
20	2.2	3.2	1.6	0.9	2.5
21	16.6	2.3	11.8	0.7	12.5
22	3.9	11.7	2.8	3.4	6.2
23	3.9	4.0	2.8	1.2	4.0
24	7.7	6.3	5.5	1.8	7.3
25	8.5	1.3	6.1	0.4	6.5
26	1.5	1.5	1.1	0.4	1.5
27	9.2	5.3	6.6	1.5	8.1
28	2.8	0	2.0	0	2.0
29	0	1.0	0	0.3	0.3
30	8.9	0	6.3	0	6.3
31	6.6	1.2	4.7	0.3	5.0
Total	159.6	191.2	113.8	55.1	168.9

TABLE 7-1 (65)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR AUG. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	15.2	12.0	10.8	3.5	14.3
2	10.9	0.2	7.8	0.1	7.9
3	4.8	T	3.4	0	3.4
4	14.0	0	10.0	0	10.0
5	3.1	1.5	2.2	0.4	2.6
6	5.0	T	3.6	0	3.6
7	11.3	0.8	8.0	0.2	8.2
8	16.0	9.5	11.4	2.7	14.1
9	9.4	2.3	6.7	0.7	7.4
10	23.7	2.1	16.9	0.6	17.5
11	7.3	7.5	5.2	2.2	7.4
12	31.1	9.3	22.1	2.7	24 8
13	42.8	9.9	30.5	2.9	33.4
14	8.5	9.8	6.1	2.8	8.9
15	0.9	0.5	0.6	0.1	0.7
16	T	0.3	0	0.1	0.1
17	0.8	0	0.6	0	0.6
18	1.5	5.7	1.1	1.6	2.7
19	3.1	0.8	2.2	0.2	2.4
20	5.7	11.0	4.1	3.2	7.3
21	16.3	0	11.6	0	11.6
22	39.9	0	28.4	0	28.4
23	2.9	4.3	2.1	1.2	3.3
24	2.5	18.5	1.8	5.3	7.1
25	11.2	2.6	8.0	0.7	8.7
26	1.6	1.1	1.1	0.3	1.4
27	5.8	4.0	4.1	1.2	5.3
28	24.4	T	17.4	0	17.4
29	21.7	0	15.5	0	15.5
30	0.2	3.5	0.1	1.0	1.1
31	5.9	0	4.2	0	4.2
Total	347.5	117.2	247.6	33.7	281.3

TABLE 7-1 (66)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR SEP. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	14.1	3.6	10.0	1.0	11.0
2	2.3	1.0	1.6	0.3	1.9
3	0.4	2.4	0.3	0.7	1.0
4	2.4	2.1	1.7	0.6	2.3
5	8.2	5.7	5.8	1.6	7.4
6	1.9	0	1.4	0	1.4
7	0.6	T	0.4	0	0.4·
8	17.2	15.8	12.2	4.6	16.8
9	4.7	0	3.3	0	3 3
10	2.1	0.3	1.5	0.1	1.6
11	5.6	0.4	4.0	0.1	4.1
12	2.2	22.3	1.6	6.4	8.0
13	11.4	0.2	8.1	0.1	8.2
14	0	0.8	0	0.2	0 2
15	9.0	0	6.4	0	6.4
16	9.9	7.2	7.0	2.1	9.1
17	2.2	2.0	1.6	0.6	2.2
18	39.6	2.0	28.2	0.6	28.2
19	11.1	6.6	7.9	1.9	9.8
20	18.9	5.0	13.5	1.4	14.9
21	27.0	4.4	19.2	1.3	20.5
22	7.4	60 0	5.3	17.3	22.6
23	11.4	1.4	8.1	0.4	8.5
24	5.9	5.0	4.2	1 4	5.6
25	20.8	0	14.8	0	14.8
26	5.8	38.7	4.1	11.1	15.2
27	8.2	T	5.8	0	5.8
28	9.5	37.9	6.8	10.9	17 7
29	3.2	77.5	2.3	22.3	24.6
30	60.6	36.7	43.1	10.6	53.7
31					
Total	323.6	339.0	230.2	97.6	327.8

TABLE 7-1 (67)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR OCT. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	10.0	51.0	7.1	14.7	21.8
2	2.1	7.5	1.5	2.2	3.7
3	8.9	1.3	6.3	0.4	6.7
4	9.7	0.2	6.9	0.1	7.0
5	34.4	14.0	24.5	4.0	28.5
6	15.3	1.0	10.9	0.3	11.2
7	0	2.5	0	0.7	0 7
8	T	25.8	0	7.4	7.4
9	1.7	0	1.2	0	1.2
10	T	1.5	0	0.4	0 4
11	12.0	7.1	8.5	2.0	10.5
12	2.0	22.6	1.4	6.5	7.9
13	0	T	0	0	0
14	0	0	0	0	0
15	2.3	0	1.6	0	1.6
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	4.0	0	1.2	1.2
22	0	0	0	0	0
23	1.4	0	1.0	0	1.0
24	13.0	7.3	9.3	2.1	11.4
25	1.1	2.7	0.8	0.8	1.6
26	0.9	6.5	0.6	1.9	2.5
27	0	0	0	0	0
28	0	2.0	0	0.6	0.6
29	0	T	0	0	0
30	0	T	0	0	0
31	0	0	0	0	0
Total	114.8	157.0	81.6	45.3	126.9

TABLE 7-1 (68)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR NOV. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	T	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0.4	0.9	0.3	0.3	0.6
7	1.2	0.6	0.9	0.2	1.1
8	0	5.0	0	1.4	1.4
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	2.7	0	0.8	0.8
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	T	0	0	0	0
18	T	0	0	0	0
19	1.0	0	0.7	0	0 7
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
Total	2.6	9.2	1.9	2 7	1.6

TABLE 7-1 (69)

AVERAGE PRECIPITATION OVER THE CATCHMENT AREA

MONTH, YEAR DEC. 1978 UNIT mm

DATE	(1) Umphang	(2) Hard pana	(3) (1) x 0.712	(4) (2) x 0.288	(5) (3)-(4) Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31	0	0	0	0	0
Total	0	0	0	0	0

TABLE 7-2 (1)

D-A-D ANALYSIS

Storm No. 8

PERIOD SEP. 21 - OCT. 20, 1959

UNIT mm

DATE	(1) Umphang	(2) Ban Nasuan	(3) Sri Sawat	(4) Kang Rieng	(5) (1) x 0.755	(6) (2) x 0.225	(A) (5)-(6)	(A) Total	(7) (1) x 0.45	(8) (2) x 0 44	(9) (3) x 0.07	(10) (4) x 0.04	(B) (7)-(10)	(B) Total
SEP. 21	2.5	5.3	0	8.3	1.9	1.2	3.1	3.1	1.1	2.3	0	0.3	3.7	3.7
22	4.8	34.2	10.6	2.0	3.7	7.7	11.4	14.5	2.2	15.0	0.7	0.1	18.0	21.7
23	23.6	12.8	10.2	7.7	18.3	2.9	21.2	35.7	10.6	5.6	0.7	0.3	17.2	38.9
24	23.1	31.8	30.7	16.0	17.9	7.2	25.1	60.8	10.4	14.0	2.1	0.6	27.1	66.0
25	15.4	30.0	40.5	40.7	11.9	6.8	18.7	79.5	6.9	13.2	2.8	1.6	24.5	90.5
26	11.3	12.2	14.2	10.8	8.8	2.7	11.5	91.0	5.1	5.4	1.0	0.4	11.9	102.4
27	5.3	18.3	11.1	3.0	4.1	4.1	8.2	99.2	2.4	8.1	0.8	0.1	11.4	113.8
28	5.4	11.9	10.0	5.2	4.2	2.7	6.9	106.1	2.4	5.2	0.7	0.2	8.5	122.3
29	1.4	21.8	11.2	12.0	1.1	4.9	6.0	112.1	0.6	9.6	0.8	0.5	11.5	133.8
30	18.1	85.6	71.3	29.3	14.0	19.3	33.3	145.4	8.1	37.7	5.0	1.2	52.0	185.8
OCT. 1	6.1	20.0	48.0	44.9	4.7	4.5	9.2	154.6	2.7	8.8	3.4	1.8	16.7	202.5
2	49.7	29.0	6.4	6.0	38.5	6.5	45.0	199.6	22.4	12.8	0.4	0.2	35.8	238.3
3	5.4	4.0	5.8	10.4	4.2	0.9	5.1	204.7	2.4	1.8	0.4	0.4	5.0	243.3
4	1.3	0	0	0	1.0	0	1.0	205.7	0.6	0	0	0	0.6	243.9
5	0	1.6	3.5	3.5	0	0.4	0.4	206.1	0	0.7	0.2	0.1	1.0	244.9
6	1.2	2.3	1.6	9.4	0.9	0.5	1.4	207.5	0.5	1.0	0.1	0.4	2.0	246.9
7	5.5	19.7	4.7	0	4.3	4.4	8.7	216.2	2.5	8.7	0.3	0	11.5	258.4
8	7.4	58.5	15.4	1.9	5.7	13.2	18.9	235.1	3.3	25.7	1.1	0.1	30.2	288.6
9	1.7	15.7	5.8	0	1.3	3.5	4.8	239.9	0.8	6.9	0.4	0	8.1	296.7
10	8.5	1.8	1.9	0.2	6.6	0.4	7.0	246.9	3.8	0.8	0.1	0	4.7	301 4
11	28.5	1.8	0	4.0	22.1	0.4	22.5	269.4	12.8	0.8	0	0.2	13.8	315.2
12	1.6	4.0	0	12.7	1.2	0.9	2.1	271.5	0.7	1.8	0	0.5	3.0	318 2
13	0	6.3	0	1.7	0	1.4	1.4	272.9	0	2.8	0	0.1	2.9	321.1
14	0	3.1	0	9.5	0	0.7	0.7	273.6	0	1 4	0	0.4	1.8	322.9
15	4.3	16.6	18.2	15.0	3.3	3.7	7.0	280.6	1.9	7.3	1.3	0.6	11 1	334.0
16	0	20.3	25.3	50 6	0	4.6	4.6	285.2	0	8.9	1.8	2 0	12.7	346.7
17	0	2.7	6.5	19.0	0	0.6	0.6	285.8	0	1.2	0.5	0.8	2.5	349 2
18	0	0	0	0	0	0	0	285.8	0	0	0	0	0	349.2
19	0	0	0	0	0	0	0	285.8	0	0	0	0	0	349.2
20	0	0	0	0	0	0	0	285.8	0	0	0	0	0	349.2

TABLE 7-2 (2)

D-A-D ANALYSIS

Storm No 9

PERIOD SEP. 1 - 30, 1962

UNIT mm

DATE	(1) Umphang	(2) Ban Nasuan	(3) Sri Sawat	(4) Kang Rieng	(5) (1) x 0.775	(6) (2) x 0.225	(A) (5)-(6)	(A) Total	(7) (1) x 0.44	(8) (2) x 0.45	(9) (3) x 0.07	(10) (4) x 0.04	(B) (7)-(10)	(B) Total
SEP. 1	3.1	0	8.0	0	2.4	0	2.4	2.4	1.4	0	0.6	0	2.0	2.0
2	2.5	0.5	0	0	1.9	0.1	2.0	4.4	1.1	0.2	0	0	1.3	3.3
3	0.3	0	2.5	1 4	0.2	0	0.2	4.6	0.1	0	0.2	0.1	0.4	3.7
4	1.3	8.2	0	3.6	1.0	1.8	2.8	7.4	0.6	3.6	0	0.1	4.3	8.0
5	35.6	2.0	22.3	3.5	27.6	0.5	28.1	35.5	16.0	0.9	1.6	0.1	18.6	26.6
6	0	3.4	1.5	8.3	0	0.8	0.8	36.3	0	1.5	0.1	0.3	1.9	28.5
7	4.3	15.0	14.7	1[illegible] 7	3.3	3.4	6.7	43.0	1.9	6.6	1.0	0.6	10.1	38.6
8	3.3	38.4	37.1	30.3	2.6	8.6	11.2	54.2	1.5	16.9	2.6	1.2	22.2	60.8
9	16.8	14.2	24.8	29.7	13.0	3.2	16.2	70.4	7.6	6.2	1.7	1.2	16.7	77.5
10	15.5	3.6	2.2	0.5	12.0	0.8	12.8	83.2	7.0	1.6	0.2	0.0	8.8	86.3
11	10.3	2.7	6.0	10.0	8.0	0.6	8.6	91.8	4.6	1.2	0.4	0.4	6.6	92.9
12	0	16.4	25.5	20.3	0	3.7	3.7	95.5	0	7.2	1.8	0.8	9.8	102.7
13	14.4	30.0	3.5	7.9	11.2	6.8	18.0	113.5	6.5	13.2	0.2	0.3	20.2	122.9
14	14.4	5.2	4.7	0	11.2	1.2	12.4	125.9	6.5	2.3	0.3	0	9.1	132.0
15	7.3	1.2	0.9	0	5.7	0.3	6.0	131.9	3.3	0.5	0.1	0	3.9	135.9
16	1.5	2.8	0	0	1.2	0.6	1.8	133.7	0.7	1.2	0	0	1 9	137.8
17	70.0	38.0	33.8	21.5	54.3	8.6	62.9	196.6	31.5	16.7	2.4	0.9	51.5	189.3
18	44.0	10.5	23.5	13.8	34.1	2.4	36.5	233.1	19.8	4.6	1.6	0.6	26.6	215.9
19	3.4	5.3	13.5	18.2	2.6	1.2	3.8	236.9	1.5	2.3	0.9	0.7	5.4	221.3
20	0.2	4.0	1.3	0	0.2	0.9	1.1	238.0	0.1	1.8	0.1	0	2.0	223.3
21	4.1	21.2	1.1	0	3.2	4.8	8.0	246.0	1 8	9.3	0 1	0	11.2	234.5
22	0.4	15.1	0	0	0.3	3.4	3.7	249.7	0.2	6.6	0	0	6.8	241.3
23	10.4	3.1	0	0.5	8.1	0.7	8.8	258.5	4.7	1.4	0	0	6.1	247.4
24	0	4.5	3.6	0	0	1.0	1.0	259.5	0	2.0	0.3	0	2.3	249.7
25	22.3	3.4	8.4	0	17.3	0.8	18.1	277.6	10.0	1.5	0.6	0	12.1	261.8
26	4.9	4.1	6.3	0.7	3.8	0.9	4.7	282.3	2.2	1.8	0.4	0	4.4	266.2
27	10.2	2.0	2.0	0.3	7.9	0.5	8.4	290.7	4.6	0.9	0.1	0	5.6	271.8
28	22.0	1.0	0	2.8	17.1	0.2	17.3	308.0	9.9	0.4	0	0.1	10.4	282.2
29	43.8	1.1	7.1	4.5	33.9	0.2	34.1	342.1	19.7	0 5	0.5	0.2	20.9	303.1
30	26.6	7.0	5.2	7.5	20.6	1.6	22.2	364.3	12.0	3.1	0.4	0.3	15.8	318.9

TABLE 7-2 (3)

D-A-D ANALYSIS | Storm No. 10 | PERIOD SEP. 16 - OCT. 15, 1963

UNIT mm

DATE	(1) Umphang	(2) Ban Hasuan	(3) Sri Sawat	(4) Kang Rieng	(5) (1) x 0.775	(6) (2) x 0.225	(A) (5)-(6)	(A) Total	(7) (1) x 0.45	(8) (2) x 0.44	(9) (3) x 0.07	(10) (4) x 0.04	(B) (7)-(10)	(B) Total
SEP. 16	8.9	0	0	0	6.9	0	6.9	6.9	4.0	0	0	0	4.0	4.0
17	4.1	2.6	0	0	3.2	0.6	3.8	10.7	1.8	1.1	0	0	2.9	6.9
18	2.0	0	0	0	1.6	0	1.6	12.3	0.9	0	0	0	0.9	7.8
19	18.1	1.2	0	0	14.0	0.3	14.3	26.6	8.1	0.5	0	0	8.6	16.4
20	10.0	0	40.1	1.9	7.8	0	7.8	34.4	4.5	0	2.8	0.1	7 4	23.8
21	0	50.0	20.5	13.2	0	11.3	11.3	45.7	0	22.0	1.4	0.5	23.9	47.7
22	0	9.8	0	0	0	2.2	2.2	47.9	0	4.3	0	0	4.3	52.0
23	54.0	0	50.0	46.7	41.9	0	41.9	89.8	24.3	0	3.5	1.9	29.7	81.7
24	17.6	43.7	30.8	12.0	13.6	9.8	23.4	113.2	7.9	19.2	2.2	0.5	29.8	111.5
25	9.0	37.7	24.3	5.3	7.0	8.5	15.5	128.7	4.1	16.6	1.7	0.2	22.6	134.1
26	9.2	16.3	3.9	23.6	7.1	3.7	10.8	139.5	4.1	7.2	0.3	0.9	12.5	146.6
27	16.0	13.1	0	27.1	12.4	2.9	15.3	154.8	7.2	5.8	0	1.1	14.1	160.7
28	12.0	4.2	0	2.7	9.3	0.9	10.2	165.0	5.4	1.8	0	0.1	7.3	168.0
29	3.0	0	4.1	4.6	2.3	0	2.3	167.3	1.4	0	0.3	0.2	1.9	169.9
30	7.4	20.0	12.0	7.9	5.7	4.5	10.2	177.5	3.3	8.8	0.8	0.3	13.2	183.1
OCT. 1	43.0	106.7	174.5	58.8	33.3	24.0	57.3	234.8	19.4	46.9	12.2	2.4	80.9	264.0
2	32.7	16.4	60.2	14.8	25.3	3.7	29.0	263.8	14.7	7.2	4.2	0.6	26.7	290.7
3	5.6	34.6	13.0	28.7	4.3	7.8	12.1	275.9	2.5	15.2	0.9	1.1	19.7	310.4
4	12.4	20.0	16.1	12.1	9.6	4.5	14.1	290.0	5.6	8.8	1.1	0.5	16.0	326.4
5	23.0	16.4	17.2	13.5	17.8	3.7	21.5	311.5	10.4	7.2	1.2	0.5	19.3	345.7
6	57.0	22.8	2.0	32.2	44.2	5.1	49.3	360.8	25.7	10.0	0.1	1.3	37.1	382.8
7	11.5	12.9	7.2	2.5	8.9	2.9	11.8	372.6	5.2	5.7	0.5	0.1	11.5	394.3
8	0	7.4	2.1	0	0	1.7	1.7	374.3	0	3.3	0.1	0	3.4	397.7
9	0	6.7	0	0.2	0	1.5	1.5	375.8	0	2.9	0	0	2 9	400.6
10	0	9.3	4.5	5.3	0	2.1	2.1	377.9	0	4.1	0.3	0.2	4.6	405.2
11	0	0	4.4	0.7	0	0	0	377.9	0	0	0.3	0	0.3	405.5
12	8.3	0	7.1	0	6.4	0	6.4	384.3	3.7	0	0.5	0	4.2	409.7
13	0	0	0	0	0	0	0	384.3	0	0	0	0	0	409 7
14	0	0	0	0	0	0	0	384.3	0	0	0	0	0	409.7
15	0	7.3	0	1.6	0	1.6	1.6	385.9	0	3.2	0	0 1	3.3	413.0

TABLE 7-2 (4)

D-A-D ANALYSIS

Storm No. 11

PERIOD SEP. 16 - OCT. 15, 1964

UNIT mm

DATE	(1) Umphang	(2) Ban Nasuan	(3) Sri Sawat	(4) Kang Rieng	(5) (1) x 0.775	(6) (2) x 0.225	(A) (5)-(6)	(A) Total	(7) (1) x 0.45	(8) (2) x 0.44	(9) (3) x 0.07	(10) (4) x 0 04	(B) (7)-(10)	(B) Total
SEP. 16	7.2	48.4	6.6	0.6	5.6	10.9	16.5	16.5	3.2	21.3	0.5	0	25 0	25.0
17	5.0	0	0	0.8	3.9	0	3.9	20.4	2.3	0	0	0	2.3	27.3
18	10.1	0	0	2.0	7.8	0	7.8	28.2	4.5	0	0	0.1	4.6	31.9
19	15.1	0	3.5	0.6	11.7	0	11.7	39.9	6.8	0	0.2	0	7.0	38.9
20	15.2	3.4	0.8	0.1	11.8	0.8	12.6	52.5	6.8	1.5	0.1	0	8.4	47.3
21	0	0	2.4	3.7	0	0	0	52.5	0	0	0 2	0.1	0.3	47.6
22	4.0	11.2	11.3	6.7	3.1	2.5	5.6	58.1	1.8	4.9	0.8	0.3	7.8	55.4
23	56.2	31.6	26.0	21.8	43.6	7.1	50.7	108.8	25.3	13.9	1.8	0.9	41.9	97.3
24	20.8	16.5	15.3	30.3	16.1	3.7	19.8	128.6	9.4	7.3	1.1	1.2	19.0	116.3
25	0.4	4.3	0.8	0.5	0.3	1.0	1.3	129.9	0.2	1.9	0.1	0	2.2	118.5
26	0.5	0	2.0	10.7	0.4	0	0.4	130.3	0.2	0	0.1	0.4	0.7	119.2
27	4.0	0	0	1.2	3.1	0	3.1	133.4	1.8	0	0	0	1.8	121.0
28	4.5	0	2.0	1.7	3.5	0	3.5	136.9	2.0	0	0.1	0.1	2.2	123.2
29	20.2	41.0	37.0	25.5	15.7	9.2	24.9	161.8	9.1	18.0	2.6	1.0	30.7	153.9
30	15.0	16.2	13.3	16.6	11.6	3.6	15.2	177.0	6.8	7.1	0 9	0.7	15 5	169.4
OCT. 1	2.0	0	2.5	7.9	1.6	0	1.6	178.6	0.9	0	0.2	0.3	1.4	170.8
2	0.5	12.0	12.6	3.7	0.4	2.7	3.1	181.7	0.2	5.3	0 9	0.1	6.5	177.3
3	10.3	3.8	18.2	14.7	8.0	0.9	8.9	190.6	4.6	1.7	1.3	0 6	8.2	185.5
4	10.5	0	0	1.7	8.1	0	8.1	198.7	4.7	0	0	0 1	4.8	190.3
5	42.8	0	0	0	33.1	0	33.1	231.8	19.3	0	0	0	19.3	209.6
6	90.4	0	0	0.8	70.1	0	70.1	301.9	40.7	0	0	0	40.7	250.3
7	1.4	0	1.0	0	1.1	0	1.1	303.0	0.6	0	0.1	0	0 7	251.0
8	11.3	8.9	0	0	8.8	2.0	10.8	313.8	5.1	3.9	0	0	9.0	260 0
9	8.0	15.5	62.2	0	6.2	3.5	9.7	323.5	3.6	6.8	4.4	0	14.8	274 8
10	6.0	26.1	0	5.5	4.7	5.9	10.6	334.1	2.7	11.5	0	0.2	14.4	289.2
11	0.4	2.6	0	0	0.3	0.6	0.9	335.0	0.2	1.1	0	0	1.3	290.5
12	37.1	27.4	14.0	0	28.8	6.2	35.0	370.0	16.7	12.1	1.0	0	29 8	320.3
13	12.5	2.4	1.7	11.2	9.7	0.5	10.2	380.2	5.6	1.1	0.1	0.4	7.2	327.5
14	7.5	6.8	6.3	2.4	5.8	1.5	7.3	387.5	3.4	3.0	0.4	0.1	6.9	334 4
15	7.6	25.3	8.0	4.8	5.9	5.7	11.6	399.1	3.4	11.1	0.6	0 2	15.3	349.7

TABLE 7-2 (5)

D-A-D ANALYSIS

Storm No. 19

PERIOD SEP. 1 - 30, 1972

UNIT mm

DATE	(1) Umphang	(2) Ban Nasuan	(3) Sri Sawat	(4) Kang Rieng	(5) (1) x 0 775	(6) (2) x 0.225	(A) (5)-(6)	(A) Total	(7) (1) x 0.45	(8) (2) x 0.44	(9) (3) x 0.07	(10) (4) x 0 04	(B) (7)-(10)	(B) Total
SEP. 1	15.8	1.4	0	3.0	12.2	0.3	12.5	12.5	7.1	0.6	0	0.1	7.8	7 8
2	2.0	0	0	0	1.6	0	1.6	14.1	0.9	0	0	0	0.9	8.7
3	0	0	0	0.9	0	0	0	14.1	0	0	0	0	0	8.7
4	0	20.7	0	1.4	0	4.7	4.7	18.8	0	9.1	0	0.1	9.2	17.9
5	14.3	10.5	14.1	11.2	11.1	2.4	13.5	32.3	6.4	4.6	1.0	0.4	12.4	30.3
6	13.0	92.6	81.0	73.5	10.1	20.8	30.9	63.2	5.9	40.7	5.7	2.9	55.2	85.5
7	8.1	77.2	67.1	51.4	6.3	17.4	23.7	86.9	3.6	34.0	4 7	2.1	44.4	129.9
8	7.8	11.7	1.8	0.5	6.0	2.6	8.6	95.5	3.5	5.1	0 1	0.	8 7	138.6
9	0	0	0	0	0	0	0	95.5	0	0	0	0	0	138.6
10	0	0	0.2	0	0	0	0	95.5	0	0	0	0	0	138.6
11	8.5	15.5	8.6	0	6.6	3.5	10.1	105.6	3.8	6.8	0.6	0	11.2	149.8
12	3.8	7.2	1.4	8.5	2.9	1.6	4.5	110.1	1.7	3.2	0.1	0.3	5.3	155.1
13	0	2.5	0	7.9	0	0.6	0.6	110.7	0	1.1	0	0.3	1.4	156.5
14	3.5	0	0	0	2.7	0	2.7	113.4	1.6	0	0	0	1.6	158.1
15	0	0	0	5.4	0	0	0	113.4	0	0	0	0.2	0.2	158.3
16	0	0	0	0	0	0	0	113.4	0	0	0	0	0	158.3
17	5.0	12.8	7.5	2.6	3.9	2.9	6.8	120.2	2.3	5.6	0.5	0.1	8 5	166.8
18	14.5	127.1	75.9	46.4	11.2	28.6	39.8	160.0	6.5	55.9	5.3	1.9	69.6	236.4
19	3.0	0	6.4	1.8	2.3	0	2.3	162.3	1.4	0	0.4	0.1	1.9	238.3
20	3.6	7.8	8.0	21.1	2.8	1.8	4.6	166.9	1.6	3.4	0.6	0.8	6.4	244.7
21	0	0	0	0.6	0	0	0	166.9	0	0	0	0	0	244 7
22	0	14.0	4.0	1.7	0	3.2	3.2	170.1	0	6.2	0.3	0 1	6 6	251 3
23	10.0	3.4	2.6	3.9	7.8	0.8	8.6	178.7	4.5	1.5	0.2	0.2	6.4	257.7
24	5.0	10.2	30.2	3.2	3.9	2.3	6.2	184.9	2.3	4.5	2.1	0.1	9.0	266.7
25	38.0	31.8	32.3	18.7	29.5	7.2	36.7	221.6	17.1	14.0	2 3	0 7	34.1	300.8
26	17.0	0	1.2	15.6	13.2	0	13.2	234.8	7.7	0	0 1	0.6	8.4	309.2
27	47.0	0	0	0	36.4	0	36.4	271.2	21.2	0	0	0	21.2	330 4
28	7.0	17.0	2.9	11.9	5.4	3.8	9.2	280.4	3.2	7.5	0.2	0.5	11 4	341.8
29	19.0	0	0	1 4	14.7	0	14.7	295.1	8.6	0	0	0.1	8.7	350.5
30	0	0	0	0	0	0	0	295.1	0	0	0	0	0	350.5

TABLE 7-2 (6)

D-A-D ANALYSIS

Storm No. 24

PERIOD AUG 1 - 30, 1978

UNIT mm

DATE	(1) Umphang	(2) Hard Pana	(3) Sri Sawat	(4) Ban Chao Nen	(5) (1) x 0.712	(6) (2) x 0.288	(A) (5)-(6)	(A) Total	(7) (1) x 0.57	(8) (2) x 0	(9) (3) x 0	(10) (4) x 0.43	(B) (7)-(10)	(B) Total
AUG. 1	15.2	12.0		6.4	10.8	3.5	14.3	14.3	8.7			2.8	11.5	11.5
2	10.9	0.2		3.8	7.8	0.1	7.9	22.2	6.2			0.3	6.5	18.0
3	4.8	T		0.2	3.4	0	3.4	25.6	2.7			0.1	2.8	20.8
4	14.0	0		0.2	10.0	0	10.0	35.6	8.0			0.1	8.1	28.9
5	3.1	1.5		1.2	2.2	0.4	2.6	38.2	1.8			0.5	2.3	31.2
6	5.0	T		0	3.6	0	3.6	41.8	2.9			0	2.9	34.1
7	11.3	0.8		0.2	8.0	0.2	8.2	50.0	6.4			0.1	6.5	40.6
8	16.0	9.5		2.8	11.4	2.7	14.1	64.1	9.1			1.2	10.3	50.9
9	9.4	2.3		3.4	6.7	0.7	7.4	71.5	5.4			1.5	6.9	57.8
10	23.7	2.1		11.0	16.9	0.6	17.5	89.0	13.5			4.7	18.2	76.0
11	7.3	7.5		3.8	5.2	2.2	7.4	96.4	4.2			1.6	5.8	81.8
12	31.1	9.3		13.6	22.1	2.7	24.8	121.2	17.7			5.8	23.5	105.3
13	42.8	9.9		7.6	30.5	2.9	33.4	154.6	24.4			3.3	27.7	133.0
14	8.5	9.8		14.0	6.1	2.8	8.9	163.5	4.8			6.0	10.8	143.8
15	0.9	0.5		1.8	0.6	0.1	0.7	164.2	0.5			0.8	1.3	145.1
16	T	0.3		0.6	0	0.1	0.1	164.3	0			0.3	0.3	145.4
17	0.8	0		0	0.6	0	0.6	164.9	0.5			0	0.5	145.9
18	1.5	5.7		7.5	1.1	1.6	2.7	167.6	0.9			3.2	4.1	150.0
19	3.1	0.8		1.4	2.2	0.2	2.4	170.0	1.8			0.6	2.4	152.4
20	5.7	11.0		0.7	4.1	3.2	7.3	177.3	3.2			0.3	3.5	155.9
21	16.3	0		0	11.6	0	11.6	188.9	9.3			0	9.3	165.2
22	39.9	0		0	28.4	0	28.4	217.3	22.7			0	22.7	187.9
23	2.9	4.3		3.0	2.1	1.2	3.3	220.6	1.7			1.3	3.0	190.9
24	2.5	18.5		1.7	1.8	5.3	7.1	227.7	1.4			0.7	2.1	193.0
25	11.2	2.6		4.0	8.0	0.7	8.7	236.4	6.4			1.7	8.1	201.1
26	1.6	1.1		0.6	1.1	0.3	1.4	237.8	0.9			0.3	1.2	202.3
27	5.8	4.0		2.8	4.1	1.2	5.3	243.1	3.3			1.2	4.5	206.8
28	24.4	T		0.2	17.4	0	17.4	260.5	13.9			0.1	14.0	220.8
29	21.7	0		3.2	15.5	0	15.5	276.0	12.4			1.4	13.8	234.6
30	0.2	3.5		0	0.1	1.0	1.1	277.1	0.1			0	0.1	234.7

Table 7-3 Representative Peak Runoff at Hard Pana and Ban Chao Nen

	Hard Pana			Ban Chao Nen		
	CA = 5,644 km^2			CA = 10,880 km^2		
Year	Date	Qpeak (m^3/sec)	q ($x10^{-3}$ m^3/sec/km^2)	Date	Qpeak (m^3/sec)	q ($x10^{-3}$ m^3/sec/km^2)
1969	Oct. 3	557	98.7	Oct. 4	596	54.8
1970	Jul. 17	272	48.2	Jul. 18	426	39.2
	Aug. 26	386	68.4	Aug. 27	476	43.8
	Sep. 3	354	62.7	Sep. 4	424	39.0
	Oct. 20	267	47.3	Oct. 21	430	39.5
1971	Jun. 11	283	50.1	Jun. 12	308	28.3
	Jul. 25	737	130.6	Jul. 26	818	75.2
	Sep. 3	378	67.0	Sep. 4	436	40.1
1972	Jul. 13	558	98.9	Jul. 14	763	70.1
	" 28	640	113.4	" 29	745	68.5
	" 31	661	117.1	Aug. 1	805	74.0
	Aug. 19	514	91.1	" 20	554	50.9
	Sep. 9	881	156.1	Sep. 9	1,310	120.4
	" 20	916	162.3	" 20	1,980	182.0
	" 29	566	100.3	" 29	882	81.1
	Oct. 6	377	66.8	Oct. 7	872	80.1
1973	Jun. 19	475	84.2	Jun. 20	634	58.3
	Jul. 11	441	78.1	Jul. 12	448	41.2
	Aug. 30	702	124.4	Aug. 30	840	77.2
	Sep. 24	823	145.8	Sep. 25	971	89.2
1974	Aug. 18	945	167.4	Aug. 19	1,250	114.9
	" 19	1,150	203.8	" 20	1,250	114.9
	Sep. 26	399	70.7	Sep. 27	1,050	96.5
	Oct. 13	821	145.5	Oct. 13	1,850	170.0
1975	Aug. 13	578	102.4	Aug. 14	608	55.9
	Sep. 24	345	61.1	Sep. 26	568	52.2
	Oct. 16	424	75.1	Oct. 17	894	82.2
	" 31	393	69.6	Nov. 1	854	78.5
1976	Sep. 8	450	79.7	Sep. 9	551	50.6
	Nov. 3	296	52.4	Nov. 4	510	46.9

Table 7-4 Flood Discharge for Various Return Period at Hard Pana

Unit : m^3/sec

Formura / Method / Return Period	$Q_{HP} = 0.706 \times Q_{KR}$		$Q_{HP} = 0.759 \times Q_{KR} - 53$	
	Gumbel	Log-Normal	Gumbel	Log-Normal
5 yrs	1,148	1,079	1,176	1,100
10	1,405	1,326	1,448	1,364
20	1,652	1,572	1,708	1,629
50	1,971	1,904	2,046	1,990
100	2,211	2,163	2,299	2,273
500	2,764	2,801	2,883	2,978
1,000	3,001	3,093	3,134	3,303
5,000	3,553	3,818	3,717	4,116
10,000	3,791	4,152	3,968	4,493
50,000	4,343	4,980	4,551	5,433
100,000	4,581	5,361	4,803	5,867
500,000	5,137	6,306	5,390	6,951

Table 7-5 Flood Discharge for Various Return Period at Nam Chon

Unit : m^3/sec

Formura / Method / Return Period	$Q_{HP} = 0.706 \times Q_{KR}$		$Q_{HP} = 0.759 \times Q_{KR} - 53$	
	Gumbel	Log-Normal	Gumbel	Log-Normal
5 yrs	1,029	979	1,054	986
10	1,259	1,188	1,297	1,222
20	1,480	1,409	1,530	1,460
50	1,766	1,706	1,833	1,783
100	1,981	1,938	2,060	2,037
500	2,477	2,510	2,583	2,668
1,000	2,689	2,771	2,808	2,959
5,000	3,183	3,421	3,340	3,688
10,000	3,397	3,720	3,555	4,026
50,000	3,891	4,462	4,078	4,868
100,000	4,105	4,803	4,303	5,257
500,000	4,603	5,650	4,829	6,228

Table 7-6 (1) Maximum Daily Runoff Data for Statistical Method Calculation

Year	Kang Rieng (Qmax)	Hard Pana (Qmax)	Adopted Qmax at Hard Pana
1952	1,547		1,092
1953	2,128		1,503
1954	824		582
1955	597		422
1956	692		489
1957	1,330		939
1958	804		568
1959	1,628		1,149
1960	779		550
1961	1,619		1,143
1962	2,450		1,730
1963	2,060		1,455
1964	1,387		979
1965	766		541
1966	762		538
1967	583		412
1968	600		424
1969	950		671
1970		386	386
1971		737	737
1972		916	916
1973		823	823
1974		1,150	1,150
1975		578	578
1976		450	450
1977		360	360
1978		1,270	1,270

$A = 10,802\ km^2$ $A = 5,644\ km^2$

$$\left(\frac{Q}{A}\right)_{KR} = 0.74 \left(\frac{Q}{A}\right)_{HP}$$

$$Q_{HP} = \frac{Q_{KR} \times 5,644}{10,802 \times 0.74}$$

$$= 0.706\ Q_{KR}$$

Table 7-6 (2) Maximum Daily Runoff Data for Statistical Method Calculation

Year	Kang Rieng (Qmax)	Hard Pana (Qmax)	Adopted Qmax at Hard Pana
1952	1,547		1,121
1953	2,128		1,562
1954	824		572
1955	597		400
1956	692		472
1957	1,330		957
1958	804		610
1959	1,628		1,183
1960	779		539
1961	1,619		1,176
1962	2,450		1,807
1963	2,060		1,511
1964	1,387		1,000
1965	766		529
1966	762		526
1967	583		390
1968	600		403
1969	950		668
1970		386	386
1971		737	737
1972		916	916
1973		823	823
1974		1,150	1,150
1975		578	578
1976		450	450
1977		360	360
1978		1,270	1,270

$$Q_{HP} = 0.759 \times Q_{KR} - 53$$

Chapter 8

Obtained Data (Supplement)

Table 8-1 (1)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year. 1970 Catchment Area 321 km^2 (unit. m^3 s day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct	Nov.	Dec.
1	4 37	3.72	3 20	0.88	1 40	2.66	4 32	7 02	13	16	5 10	4 32
2	4.37	3.72	3 20	0 88	1 10	2.84	3 68	7 02	12	13	5 40	5 40
3	4 24	3.72	3 20	1.02	1 10	2 48	3.68	6 80	16	12	5 20	4 16
4	4.24	3.72	3 20	0.88	1 94	2.12	3.36	6 40	17	10	5 00	6 40
5	4.24	3.72	3.08	1.02	2.30	1.76	7.24	5 80	16	9.44	5 00	5 20
6	4.24	3 72	3.08	1.16	1.94	1.76	21	5 60	22	8 34	1 80	5.40
7	4.24	3.59	3 08	1.16	1 76	2.12	16	5 60	41	7.90	4 64	4 48
8	4.24	3.59	3.08	1.16	1.40	1.94	11	6 40	41	9.14	4 48	4 16
9	4 24	3.59	3.08	1.94	1 40	2.12	11	5 80	28	8 12	4 32	4 00
10	4.11	3.59	2.96	2.12	1.16	2.66	8.34	5 40	22	7.46	4 32	3.84
11	4.11	3 59	2.96	1 94	1.16	3.36	12	5 60	22	7.02	4 16	3 68
12	4.11	3 72	2.96	1 40	1 02	2 66	10	5.40	35	7.68	4 16	3 52
13	4.37	3 72	2 96	1.16	1 02	2 30	10	5 20	26	9 88	4 00	3 68
14	4.24	3.72	2 96	1.16	1.02	2.84	13	5 20	23	7 68	4 00	3.84
15	4.24	3.72	2.96	1.40	1.02	4.16	41	5 00	20	7.24	5 40	3 68
16	4.11	3.59	2.96	1 02	1 76	3.68	117	6 20	17	6 40	4 32	3 36
17	4.11	3.59	2 96	1.02	2.48	3.02	60	11	16	6.00	4 00	3.36
18	4.11	3 59	2.84	1.02	2.48	2 66	60	13	17	6 00	3 84	3 20
19	3.98	3 59	2 84	0 88	2.48	2 66	35	21	16	7.24	3 84	3 02
20	3.98	3.46	2.84	0.88	2.84	3.02	24	24	16	6 60	3.84	3 02
21	3.98	3.46	2.84	0 88	3 02	3.02	19	23	16	6 60	3 68	3 02
22	3.98	3 46	2.84	0 74	3 02	3.02	16	19	16	7 90	4 16	3 02
23	3 98	3.46	2 96	0.74	2 48	2.48	13	16	14	7 90	4.16	2.84
24	3 98	3.33	3.33	1 16	3 52	3.52	12	16	13	6 40	3 68	2 84
25	3 98	3.33	3 20	1 58	2 66	2.66	11	20	12	6 00	3 52	2.84
26	3.85	3.33	3.08	1.58	2.30	2.30	11	21	12	5 60	3 52	2 84
27	3.85	3.33	3.33	1.58	2 12	2.12	11	25	16	10	3 52	2 84
28	3.85	3 33	3 08	1 76	1.94	1 94	11	20	13	10	3 36	2 84
29	3.85		2.96	1.40	2.12	2 12	9.66	17	16	7.02	3 68	2 66
30	3 85		2.96	1 58	1.94	1.94	9.44	16	16	5 60	3 68	2 66
31	4.11		2.96		1.76	1 76	9.44	15		5 60		2 66
Total	127.15	100.00	93.94	37.10	60 26	60 26	609.16	371 44	580 00	252 06	127.08	113 26
Mean	4.10	3.57	3 03	1.23	1 94	1.94	19.65	11.98	19 3	8 13	4 23	3.65

Table 8-1 (2)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year. 1971 Catchment Area: 321 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	2.48	1 54	1 16	0 60	0 60	1.20	9.12	28	22	10	6 70	3 71
2	2 48	1 58	0.88	0 45	0 75	1 20	8 24	24	22	14	6.48	3.71
3	2.48	1.58	0.88	0 45	0.30	1 05	8.24	21	20	14	6 26	3 71
4	2.48	1.58	0 88	0 30	0 30	1.50	7 36	19	18	14	6.92	3 71
5	2.48	1.40	0.88	0 30	0 30	2.10	6 48	18	17	14	6 26	3.50
6	2.30	1.40	0.74	0 30	0.45	3.50	6.48	17	16	13	5 60	3.50
7	2 30	1.40	0 74	0 30	1.05	5 18	6 70	17	14	10	5 39	3 50
8	2.30	1.40	0.74	0.30	1 50	5 60	8 02	18	14	9 34	5 39	3 50
9	2.30	1.40	0 74	0.30	1.05	13	11	17	13	9 12	5.18	3.30
10	2.12	1.16	0.74	0.30	0.75	34	8 68	16	13	9.79	5 18	3 30
11	2.12	1.16	0.74	0.45	0 60	64	12	14	12	17	5 18	3.30
12	2.12	1 16	0.74	0.45	0 60	44	9.34	14	12	20	4.97	3 30
13	2 12	1.16	0.74	0.45	0 60	19	9 56	14	11	14	4 97	3 10
14	2.12	1.16	0.60	0 30	0.60	12	19	17	12	11	4.76	3.10
15	2.12	1.16	0.60	0.30	0 45	8.46	37	16	12	9 78	4 76	3.10
16	2.12	1.16	0.60	0.15	0.45	7.14	22	16	11	9 34	4 55	3 10
17	2.12	1.02	0.60	0 15	0.30	6 48	17	14	11	8.68	4 34	2 90
18	1.94	1.02	0 60	0 15	0.30	10	14	12	14	8.02	4.34	2 90
19	1.94	1.02	0 60	0 30	0.60	29	13	12	20	7.80	4 34	2.90
20	1.94	0.88	0.60	1 60	0.60	20	32	13	14	8.02	4 34	2.90
21	1.94	0.88	0.60	1 20	1.05	19	32	14	13	8.68	4 34	2.70
22	1 94	0.88	0.60	0 60	0 90	18	24	33	11	7 36	4 13	2.70
23	1.94	0.74	0.60	0.60	1 35	19	24	27	10	6 92	4 13	2 70
24	1 94	0 74	0.60	0 45	1 50	15	41	20	9.56	6 70	4 13	2.70
25	1.94	0 74	0.60	0 30	1.50	13	64	18	9.12	6.48	4 13	2.70
26	1 76	0 74	0.88	0 30	1 20	10	100	19	11	6 92	3.92	2 70
27	1.76	1.40	0.74	0 30	1 35	8 46	81	17	15	7.80	3 92	2 70
28	1.76	1 16	0.88	0.15	1 20	7.36	82	18	13	12	3.92	2 50
29	1.76		0 74	0 90	0 75	7.58	56	16	10	12	3.92	2 50
30	1.76		0.60	0.90	1 05	7.58	42)	18	10	8.92	3 92	2 50
31	1.58		0 46		1 50		33	18		7.14		2 50
Total	64.46	32 66	22 10	12 60	25 50	413.39	854.22	555	409 68	320.90	146 37	94.94
Mean	2.07	1 66	0 71	0.42	0.82	13 8	27 5	17 9	13 6	10.3	4.88	3 06

Table 8-1 (3)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1972 Catchment Area. 321 km^2 (unit. m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	2.50	1.50	0 90	0 65	0.52	2 20	11	75	37	27	9 13	5 73
2	2 50	1 50	0.90	1.04	0.52	2 50	10	78	33	23	8 75	5 39
3	2.30	1.50	0.90	1.17	0.39	3 25	11	80	30	23	8 37	3 05
4	2.30	1.50	0 90	0.35	0.39	2.50	18	70	28	23	8 56	4.88
5	2 30	1 35	0 90	1.17	0.39	7.60	28	61	27	22	8 18	4.71
6	2.30	1.35	0 75	1.04	0.39	26	40	57	28	23	7.99	4 71
7	2.10	1 35	0.75	0 91	0.26	15	34	60	90	21	8 37	4 71
8	2.10	1.35	0.75	1.04	0.26	19	23	54	115	19	8 37	4 88
9	2.10	1.35	0 75	0.78	0.39	90	18	49	57	18	8 56	4 88
10	2.10	1.20	0.75	0 65	0.52	40	16	44	60	18	7.04	4 52
11	2.10	1 20	0 75	0.65	0.65	35	33	45	49	18	6.66	4.20
12	2.10	1.20	0.75	2.20	0.78	31	216	43	41	17	6.28	4.05
13	1.90	1 20	0 75	2.80	0.78	22	205	44	36	16	6 09	3.90
14	1.90	1 20	0.60	2.20	0.65	16	173	42	37	15	5.90	3.75
15	1.90	1.50	0.60	1.45	0 52	12	193	42	31	18	6.28	3.75
16	1.90	1.05	0.90	3.40	0.78	11	161	48	30	23	6.66	3.00
17	1.90	1 05	0.90	2.35	2.05	8.60	119	59	27	17	6.09	3 60
18	1.90	1.35	0.75	1.45	15	14	85	57	26	16	7.61	3.45
19	1.90	1.50	0.75	1.04	25	16	64	53	46	15	5.90	3.45
20	1.90	1.35	0.75	0.78	12	12	55	49	31	19	5 90	3.30
21	1.90	1 35	0 60	0.65	7 00	13	51	50	46	14	5.73	3.30
22	1.70	1.20	0.60	0 65	5.15	10	53	46	38	14	6.09	3.15
23	1.70	1.05	0.60	0.59	4 30	8 40	76	42	31	13	5.39	3.00
24	1.70	1.05	0 60	0.52	4.15	8 00	115	38	30	12	11	3.00
25	1.70	1 05	0 60	0 52	3.70	6.80	151	37	34	12	16	2.85
26	1.70	0.90	0.45	0.52	3.10	6.40	110	37	38	11	10	2.85
27	1.50	0.90	0.45	0.78	2.80	9.60	113	40	31	11	8.18	2.70
28	1.50	0.90	0.45	0.78	2.35	11	108	37	29	11	7.04	2 70
29	1.50	0.90	0.45	0.78	2.05	13	110	34	27	10	6.47	2.56
30	1.50		1.35	0.78	2.05	12	118	35	28	9.70	5.10	2.56
31	1.50		0.90	0.52	1.90		93	33		9.51		2.56
Total	59.90	35 40	24.05	35.36	100.79	482.85	2,611	1,539	1,186	518.21	228.49	117.74
Mean	1.93	1.22	0.77	1.18	3.25	16.1	84.2	49.6	39.5	16 7	7.61	3.80

Table 8-1 (4)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1973 Catchment Area: 321 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	2.56	1.30	0.65	0.70	0.28	3.38	6.02	16	36	25	9.40	4.78
2	2.42	1.30	0.52	0.46	0.38	0.77	5.84	18	38	22	9.00	4.78
3	2.42	1.30	0.52	0.43	1.85	0.61	5.66	15	52	20	8.60	4.62
4	2.28	1.30	0.52	0.43	0.67	1.05	6.74	14	42	26	8.40	4.62
5	2.28	1.17	0.52	0 40	0.61	1.40	8.00	15	35	34	8.20	4.46
6	2.14	1.17	0 52	0.40	0.46	0.98	8.80	17	30	34	8 00	4.46
7	2.00	1.17	0.52	0.40	0.43	3.84	11	17	27	27	7.80	4.30
8	1.86	1.17	0.52	0 40	0.55	3.38	12	15	28	24	7.61	4.30
9	1.86	1.17	0.52	0.38	0.58	2.54	26	13	26	25	7.42	4.15
10	1.86	1.17	0.39	0.38	0.46	5.03	24	12	23	29	7.23	4.15
11	1.86	1.17	0.39	0.38	0.40	2.21	21	11	20	22	7.04	4.15
12	1.86	1.17	0.39	0.38	0.43	1.40	55	11	20	20	6.85	4.00
13	1.72	1.17	0.26	0.36	0.40	1.05	48	20	58	19	7.04	4.00
14	1.72	1.17	0.26	0.36	0 40	1.26	35	24	28	18	6 85	4.00
15	1.58	1.04	0.26	0.36	0.49	24	29	21	23	17	6.66	3.85
16	1.58	1.04	0.65	0.34	0.64	35	35	21	23	16	6.47	3.85
17	1.58	1.04	0.78	0.34	0.58	133	44	20	22	15	6.28	3.70
18	1.58	1.04	0.78	0.32	0.46	135	52	22	45	14	6.09	3.70
19	1.44	1.04	0.65	0.32	0.46	57	50	21	41	14	6.09	3.55
20	1.44	1.04	0.65	0.32	0.40	46	34	19	40	13	6.66	3.55
21	1.30	1.04	0.52	0 32	0.40	30	34	26	43	13	5.90	3.40
22	1.30	1.04	1.58	0.32	0.67	20	30	32		13	5 90	3.40
23	1.30	1.04	0.62	0.32	0.59	16	25	50		12	5 74	3.40
24	1.30	0.91	0.13	0.30	0.58	12	22	46		12	5.58	3.40
25	1.30	0.78	0.00	0.30	0.77	11	20	79		11	5.42	3.25
26	1.17	0.78	1.58	0.28	1 05	9.20	18	64		11	5.26	3.25
27	1.17	0.78	0.91	0.28	0 77	8.40	16	53		11	5.10	3.25
28	1.30	0.65	0.78	0.28	0.70	7.64	16	47	22	11	4.94	3.10
29	1.30		0.65	0.28	0.77	6.74	16	40	27	10	4.94	3.10
30	1.30		0.52	0.28	0.61	6.20	16	38	26	10	4.78	3.10
31	1.30		0.52		0.64		16	40		9.80		3.10
Total	52.08	30.16	18.08	10.8	18.41	586	736	857		558	202	119
Mean	1.69	1.08	0.58	0.36	0.59	19.54	23.73	27.64		18.00	6.72	3.83

Table 8-1 (5)
Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1974 Catchment Area: 321 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	2.95	2.06	1 29	1.30	2.66	20	17	11	21	18	19	6.37
2	2 95	1.92	1 29	1 30	2.80	22	16	12	21	17	15	6 18
3	2.95	1 92	1.29	1.30	2.66	17	14	14	22	16	13	6.18
4	2.80	1 92	1.29	1.30	2.66	14	13	13	22	16	13	6.18
5	2.80	1 92	1 18	1.30	2.38	20	12	11	21	15	12	5.99
6	2.80	1.92	1.18	1.30	1.96	20	15	11	20	14	12	5.99
7	2.80	1.92	1.18	1.30	2.10	17	17	11	19	14	11	5.80
8	2.76	1.78	1.64	1.30	1.96	23	17	11	18	15	11	5 80
9	2.76	1.78	1.64	1.54	1.68	24	15	10	17	15	11	5 64
10	2.76	1.78	1.64	1.68	1.40	18	13	10	17	20	10	5.64
11	2.76	1.78	1.64	1.68	3.22	19	13	11	16	21	12	5.48
12	2.62	1.78	1 40	1.54	2.52	28	11	16	16	34	11	5.32
13	2.62	1.78	1.40	1.40	1.68	26	11	48	16	42	10	5.32
14	2.62	1.78	1.40	1.40	1.54	23	10	56	16	29	10	5.16
15	2.62	1.64	1.40	1.30	1.40	24	11	93	16	28	9.50	5 16
16	2.48	1.64	3.10	1 30	1.30	30	11	151	16	55	8.90	5 00
17	2.48	1.64	2.06	1 20	1.40	27	9.90	241	15	41	8.30	4.84
18	2.48	1.64	1.92	1.00	6 56	23	9.50	321	14	33	8.10	4.68
19	2.48	2.95	1 78	0.90	3.50	18	9.50	221	14	29	7.90	4.68
20	2.48	2.34	1.78	1.00	2.80	17	10	165	14	25	7.70	4 68
21	2.34	1.78	2.06	1.00	3.64	15	12	113	16	25	7.51	4.68
22	2.34	1.78	2.06	1.10	3.08	16	11	62	17	36	7 32	4.68
23	2.34	1.78	1.92	1.10	2 80	18	11	47	16	29	7.13	4.52
24	2.20	1.64	1.78	1.00	5.32	24	9.90	41	20	23	6.94	4 52
25	2.20	1 64	1.78	1.00	38	20	10	35	21	20	6.75	4.52
26	2.20	1.40	1.78	1.20	17	21	10	33	22	18	6.75	4 52
27	2.20	1.40	1.64	1.30	9 50	19	11	33	23	17	6 56	4.52
28	2.06	1.40	1.40	1.40	11	18	11	28	22	17	6 56	4.52
29	2.06		1.29	3.08	36	18	10	26	18	22	6 56	4.52
30	2.06		1.29	2.52	46	17	11	24	17	21	6 37	4.52
31	2.06		1.40		25		11	22		20		4.36
Total	78.03	51.85	49.60	41.04	245 52	616	372.80	1,901	543	745	288 85	159.97
Mean	2.52	1.85	1.60	1.37	7.92	20.5	12.0	61.3	18 1	24.0	9.63	5.16

Table 8-1 (6)
Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1975 Catchment Area: 321 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	4.20	3.22	2 38	2.26	1 17	2 10	13	9.40	11	12	7 30	4 34
2	4.06	3.22	2.38	2 26	3.70	2.58	11	12	17	13	6.90	4 18
3	4.06	3.22	2 38	1.94	2.42	7.30	11	14	17	20	6 70	4.18
4	3.92	3.08	2 38	1 62	1.94	15	11	16	17	14	6 70	4.02
5	3.92	3.08	2 38	1.62	2.26	17	11	19	24	13	6.90	4.02
6	3.92	3.08	2.38	1.62	3.06	12	12	20	27	12	6.70	3 86
7	3.92	3.08	2 38	1.62	3.36	14	11	17	21	13	6.30	3 86
8	3.92	3.08	2 38	1.62	3.22	30	12	17	19	11	6.30	3.70
9	3.92	2.94	2.38	1 62	5.58	34	14	16	18	11	6.30	3.70
10	3.92	2.80	2 24	1.94	3.70	18	13	15	17	12	6.70	3.70
11	3.92	2.80	2.24	1.78	2 90	16	13	26	16	11	5.94	3.70
12	4.36	2.80	2.24	1.62	2.42	15	16	32	20	10	5.76	3.70
13	4.06	2.66	2.24	1.62	2.42	13	14	30	17	11	5.58	3 70
14	4.52	2.66	2.24	1.62	2.74	12	13	41	15	25	5.58	3.54
15	4.36	2.66	2.10	1.30	2.26	14	11	46	15	19	5.40	3.54
16	4.06	2.66	2.10	1 30	1.94	16	10	53	13	14	5.22	3.38
17	3.92	2.66	2.10	1.30	1.94	14	15	42	15	12	5.22	3.38
18	3.78	2.66	2.10	1.30	2.26	19	13	34	16	11	5.04	3.22
19	3.92	2.52	2.10	1.30	1.94	19	11	28	15	10	5 04	3.22
20	6.75	2.52	2.10	1.17	2.10	14	23	25	14	14	4.86	3.22
21	4.06	2.52	1.96	1.17	2.42	12	18	22	13	11	4.86	3.22
22	3.92	2.52	1.96	1.30	2.10	15	16	21	13	9.40	4.86	3.22
23	3.78	2.52	1.96	1.62	3.06	11	14	19	13	8.96	4.86	3.22
24	3.64	2.52	1.96	1.62	2.90	8.96	12	18	15	8.52	4.50	3.06
25	3.50	2.38	1.96	1.46	2.58	9.40	11	17	15	8.10	4.50	3.06
26	3.50	2.38	1.96	1.46	2 58	11	12	20	14	7.90	4.50	3.06
27	3.50	2.38	1.82	1.30	2.74	13	12	19	13	7.90	4.50	3.06
28	3.36	2.38	1.82	1.17	2.42	12	11	21	11	9.40	4.50	3.06
29	3.36		1.82	1.17	2.26	13	13	19	11	8.52	4.34	2.90
30	3.22		1.82	1.17	2.10	15	14	17	10	8.30	4.34	2.90
31	3.22		1.82		2.10		11	17		8.10		2.90
Total	122.47	77.00	66.08	45.87	81.09	424.34	402	722.40	477	364.10	166.02	107.98
Mean	3.95	2.75	2.13	1.53	2.61	14.1	13.0	23.3	15 9	11.7	5 53	3.48

Table 8-1 (7)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1976 Catchment Area: 321 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	2 90	1.78	1.04	1 30	1 40	19	4 68	18	13	4.52	27	2 52
2	2.90	1.78	1.04	1.30	1.72	21	18	16	15	4.36	17	4.36
3	2.74	1.62	1.04	1.30	1.84	16	20	14	15	4.36	13	4 36
4	2.74	1.62	1 04	1.30	1 72	16	23	18	14	4.36	12	4 36
5	2 74	1.62	1.04	1.20	1 50	18	19	11	16	4.36	11	4.36
6	2 74	1.62	1.04	1 20	1.84	14	17	14	31	1.36	11	4 20
7	2 74	1.62	1 04	1 20	2.68	11	15	18	117	4.20	9 40	4 20
8	2.74	1.62	1 04	1.10	3 36	9 00	11	22	76	4 06	9 00	4 06
9	2 74	1.62	1 04	1 10	2 80	9 40	11	28	45	3.92	8 60	3 92
10	2 58	1.62	1.04	1.10	1 96	6.20	11	28	37	3.78	8 00	3 78
11	2.58	1.62	0 91	1 10	1.72	5.64	9.80	31	29	3 78	7 60	3 78
12	2.42	1.62	0 91	1 00	1 60	6.00	8.40	65	28	3.78	7 72	3.78
13	2.42	1.62	0 91	1 00	1.72	4.84	7.80	52	25	3 78	6 80	3.78
14	2.42	1.46	0 91	1.00	1 60	4 36	7.60	34	24	3.78	6.40	3.78
15	2.42	1.46	0 91	1.00	1.40	4 06	10	26	22	3.64	6 40	3 64
16	2 26	1 46	0.91	1.00	1.50	3.92	11	22	20	3.64	6 20	3.64
17	2.26	1.46	1.17	1.00	1.50	3.92	11	19	19	3.50	6 00	3.50
18	2.26	1.46	1.04	1 00	1.40	3.78	14	17	17	3.50	5 80	3.50
19	2.26	1.30	1 04	1 00	1.50	3.64	18	16	17	3.36	5.64	3 36
20	2.26	1.30	1.04	1.00	1 60	3 64	30	15	16	3.36	5.64	3.36
21	2.10	1.30	0.91	1.00	1.60	3.78	26	14	15	3.36	15	3.36
22	2.10	1.30	0.91	1.10	1.96	3.92	22	15	14	3.22	14	3.22
23	2.10	1.30	1.94	1.10	9.20	6.20	16	14	14	3.22	14	3.22
24	2.10	1.30	1.78	1.10	9.00	6.00	18	20	13	3.22	13	3.22
25	2.10	1.30	1.17	1.10	5.64	6 80	15	20	13	3 08	13	3.08
26	1.94	1.17	1.04	1.10	27	5.64	13	18	12	3.08	12	3.08
27	1.94	1.17	1.04	1.20	15	6.00	12	15	13	3.08	13	3.08
28	1.94	1.17	1.04	1.20	10	4.68	11	17	12	3.08	12	3.08
29	1.94	1.17	1.04	1.50	13	4.36	11	15	11	3.08	11	3.08
30	1.78		1.04	1.40	12	3.92	12	14	10	3.08	10	3.08
31	1.78		0.91		15		14	13		3.08		3.08
Total	72.94	42.46	32.97	34.00	155.76	233.70	447.28	653.00	723.00	112.82	316.68	112.82
Mean	2.35	1.46	1.06	1.13	5.02	7.79	14.4	21.0	24.1	3.63	10.5	3.63

Table 8-1 (8)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1977 Catchment Area: 321 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	3.08	2.08	1 60	1.50	1.00	8 44	5.80	70	11	13	4.84	2.92
2	2.94	2.08	1 60	1 50	1.00	7 56	6.46	65	9.76	13	4.68	2.92
3	2 94	2.08	1.60	1.40	1.00	7.34	14	81	8.88	13	4.52	2 76
4	2 94	2.08	1.72	1.30	1.00	5.80	18	70	8.44	9.76	4.36	2 60
5	2.80	2.08	1.73	1.30	1.00	3.56	46	31	8.88	9.54	4.20	2.60
6	2.80	2.08	1.60	1.50	1.00	2.92	29	49	18	9.32	4.04	2.60
7	2 80	2.08	1 60	1 40	2 20	2 60	14	45	45	9.54	4.04	2.60
8	2.68	1.96	1.60	1 30	1.70	2 30	11	30	91	8.88	3.88	2 60
9	2 68	1.96	1.60	1.30	1.60	2 10	9.32	22	93	8.44	3 88	2 60
10	2 68	1.96	1.60	1 30	1.50	2 10	6 46	18	119	8.44	3 88	2 60
11	2 68	1.84	1.60	1.20	1.50	2.60	5.48	17	78	8.22	3.72	2.50
12	2.56	1 84	1.60	1.20	1.50	2.20	5.16	15	60	8.00	3.72	2.50
13	2.56	1 84	1.60	1.20	1 60	2 10	4.52	14	50	7 56	3.56	2.50
14	2.56	1 84	1.60	1 10	1.80	2.20	4.36	14	46	6 68	3.56	2.40
15	2.44	1 84	1.60	1.10	1.60	1.90	4.04	12	39	6.24	3.56	2.40
16	2.44	1.84	1.50	1.10	1.40	1.80	3.88	10	25	6.24	3.40	2.40
17	2.44	1.84	1.50	1.10	1.40	1.80	3.72	9.76	25	6.02	3.40	2.40
18	2.32	1.64	1.40	1.10	13	1.80	3.56	10	21	6.02	3 24	2.30
19	2.32	1.74	1.40	1.10	4 84	1.80	3.40	12	20	5.64	3.24	2.40
20	2.32	1.72	1.84	1.30	2.60	1.80	3.24	13	21	5.32	3.08	2.30
21	2.32	1.72	1.72	1.50	2.00	2.00	23	19	17	5.16	3.08	2.30
22	2.34	1.72	1.72	1.30	1.80	2.20	34	19	17	5.16	3.08	2.30
23	2.32	1.72	1.72	1.30	1.90	2.10	29	19	16	5 00	2.92	2.20
24	2.32	1.60	1.60	2.00	2.50	2.20	30	21	15	4 84	2.92	2.20
25	2.32	1.60	1.60	1.70	2.20	2.50	45	19	14	4.84	2.92	2.20
26	2.32	1.60	1.60	1.50	1.90	3.24	41	16	14	5.64	2.92	2.20
27	2.20	1.60	1.50	1.40	1.80	4.04	21	14	13	5.32	2.92	2.10
28	2.20	1.60	1.40	1.30	1.80	3.72	17	13	14	5.16	3.88	2.10
29	2.40		1.50	1.10	1.90	3.56	27	12	13	5.00	3.24	2.10
30	2.20		1.60	1.00	6.24	3.88	42	11	13	4.84	2.92	2.10
31	2.20		1.72		6.02		31	11		4.84		2.10
Total	77.90	51.76	49.56	39.4	74.3	94.16	541.4	781.76	943.96	224.56	107.6	74.80
Mean	2.51	1.84	1.59	1.31	2.40	3.14	17.5	25.2	30.5	7.24	3.59	2.41

Table 8-1 (9)

Daily Runoff at Huai Mae Nam Noi Gaging Station

Year: 1978 Catchment Area: 321 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	2.10	1.90	1.60									
2	2.10	2.00	1.60									
3	2.00	2 10	1.60									
4	3.08	1.90	1.50									
5	2.92	1.90	1.50									
6	2.30	1.90	1.50									
7	2.20	1.90	1.50									
8	2.10	1.80	1 50									
9	2.10	1.80	1.40									
10	2.00	1.80	1.30									
11	2.00	1.70	1.30									
12	2.00	1.60	1.20									
13	2.00	1.50	1.20									
14	1.90	1.50	1 20									
15	1 90	1.50	1.20									
16	1.90	1.50	1 20									
17	1.90	1.50	1 10									
18	1.90	1.50	1.10									
19	1.90	1 60	1.10									
20	1.90	1.70	1.10									
21	1.90	1.70	1.00									
22	1.90	1.70	1.00									
23	1.90	1.70	1.00									
24	1.90	1.60	1.00									
25	1.90	1.60	1.00									
26	1.90	1.60	1 00									
27	1.90	1.60	1.00									
28	1.80	1.60	1.00									
29	1 80		1.00									
30	1.80		1.00									
31	1.80		1 00									
Total	60 8	115.7	37.7									
Mean	1.96	41 3	1 22									

Table 8-1 (10)

Daily Runoff at Wang Pho Gaging Station

Year: 1970 Catchment Area: 6,500 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	38	24	18	15	18	37	66	190	403	292	125	55
2	38	24	17	15	19	37	84	197	373	284	118	59
3	37	23	17	14	17	34	93	191	392	253	113	64
4	37	24	17	14	16	31	82	198	448	222	106	65
5	37	34	17	15	16	28	93	189	488	201	101	63
6	36	23	16	18	18	27	138	192	519	185	97	63
7	36	23	16	20	17	23	161	180	526	176	93	61
8	35	23	16	19	17	21	209	171	584	172	89	57
9	35	23	16	18	19	22	196	177	610	183	85	53
10	35	23	16	18	19	22	165	170	585	211	83	50
11	34	24	16	17	17	24	151	164	531	203	80	48
12	34	23	16	18	15	31	137	169	487	180	78	47
13	34	24	16	18	15	33	125	169	538	178	76	46
14	36	24	15	18	14	31	119	172	532	194	74	47
15	36	23	15	16	14	31	164	169	481	204	72	45
16	35	22	15	15	17	44	508	180	444	192	75	45
17	33	22	14	15	16	70	981	268	414	165	76	45
18	33	22	14	14	19	53	1,135	322	409	156	71	44
19	33	22	14	14	23	41	1,000	380	410	184	72	42
20	32	22	14	14	23	51	722	414	387	201	64	41
21	31	21	14	13	23	56	507	552	379	202	62	40
22	31	21	14	13	24	55	385	728	376	201	61	40
23	31	21	14	13	26	57	302	669	385	188	65	39
24	30	20	15	13	27	61	247	555	369	178	73	39
25	30	19	18	14	32	74	213	571	350	173	72	39
26	29	19	22	14	31	82	194	641	311	160	67	38
27	29	19	23	15	27	75	202	657	303	152	59	38
28	29	18	18	19	24	66	224	605	305	161	57	38
29	28		17	19	22	60	203	542	316	172	56	37
30	27		16	17	25	62	186	488	300	150	54	36
31	27		16		29		193	434		134		35
Total	1,026	620	502	475	639	1,339	9,285	10,724	12,954	5,907	2,374	1,459
Mean	33.1	22.1	16.2	15.8	20.6	44 6	299	346	432	190	79.1	47 1

Table 8-1 (11)

Daily Runoff at Wang Pho Gaging Station

Year. 1971 Catchment Area: 6,500 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	35	24	20	18	14	24	215	719	470	192	101	44
2	34	23	20	17	16	29	202	584	494	211	94	43
3	33	23	19	16	17	32	189	459	481	235	93	42
4	33	23	19	15	16	27	184	387	448	251	95	41
5	33	22	19	15	16	27	179	336	432	245	106	41
6	32	22	18	14	18	33	180	306	416	242	94	40
7	31	22	17	14	18	38	177	412	388	244	84	40
8	31	22	17	14	23	47	195	425	346	248	78	39
9	31	22	17	14	23	79	237	458	320	240	77	39
10	30	22	17	14	20	156	280	472	298	222	86	38
11	30	21	17	15	19	540	284	462	297	218	99	37
12	29	21	17	14	18	731	295	448	272	302	84	36
13	29	21	17	14	16	676	283	445	247	351	73	36
14	29	21	17	14	16	482	273	453	236	294	70	35
15	28	21	16	17	15	283	376	471	225	242	66	34
16	28	20	16	15	15	184	620	486	212	207	63	34
17	28	20	16	13	14	137	678	460	220	187	60	33
18	28	20	16	13	14	103	540	432	222	169	58	33
19	27	20	16	13	14	122	438	376	288	158	56	33
20	27	20	16	15	13	352	402	356	418	145	55	32
21	27	19	16	16	14	445	471	364	385	142	53	32
22	27	19	16	17	15	433	571	418	304	136	52	31
23	26	19	16	18	16	465	544	530	259	131	51	31
24	25	20	16	18	19	440	553	544	228	120	50	31
25	25	19	16	17	19	392	886	492	218	112	49	30
26	25	19	17	16	20	330	1,347	444	212	108	48	30
27	25	20	21	15	23	279	1,672	418	219	108	46	29
28	25	21	22	15	22	230	1,790	414	221	114	46	29
29	24		19	14	22	196	1,741	436	218	131	45	29
30	24		19	15	22	199	1,515	405	208	122	45	29
31	24		19		22		1,067	447		113		31
Total	882 .	586	544	455	549.9	7,511	18,384	13,859	9,202	5,940	2,077	1,082
Mean	28.4	20.9	17.5	15 2	17.7	250	593	447	307	192	69.2	34

Table 8-1 (12)

Daily Runoff at Wang Pho Gaging Station

Year: 1972 Catchment Area: 6,500 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	30	21	16	14	17	22	300	1,553	645	465	150	87
2	29	20	16	15	16	23	252	1,597	648	513	142	83
3	28	20	15	15	14	25	230	1,574	608	489	138	81
4	27	20	15	16	13	34	194	1,427	522	460	134	77
5	27	20	15	17	13	49	246	1,151	505	472	132	75
6	27	19	15	22	12	59	352	910	464	501	129	73
7	26	19	15	22	12	177	427	792	537	486	124	73
8	26	19	15	11	11	321	464	778	877	490	131	72
9	25	19	15	18	11	348	430	728	1,007	505	165	72
10	25	19	15	18	10	743	394	644	880	459	155	70
11	25	19	15	16	10	1,039	352	585	728	424	129	69
12	25	19	14	16	10	731	659	542	680	388	119	66
13	24	19	14	20	9.9	490	1,462	507	648	351	112	65
14	24	19	14	20	9.9	368	2,306	568	610	331	106	65
15	24	19	14	20	9.9	266	2,810	582	561	321	103	62
16	23	19	14	18	9.6	197	3,060	561	510	374	103	60
17	23	19	14	25	9.9	160	2,930	577	475	350	108	57
18	23	19	16	19	12	130	2,506	648	440	295	136	56
19	23	18	15	19	26	129	1,954	713	494	273	120	55
20	23	19	14	19	92	195	1,387	792	729	293	105	54
21	22	19	14	16	120	248	986	850	826	293	98	53
22	22	18	14	15	86	212	795	866	717	259	96	52
23	22	18	14	14	52	189	722	786	622	238	96	51
24	22	17	14	13	53	157	734	699	548	222	98	50
25	22	17	14	13	53	141	1,078	624	523	210	137	50
26	22	16	20	13	44	128	1,523	589	554	198	136	49
27	21	16	15	13	38	113	1,729	695	594	188	127	48
28	21	16	14	16	31	117	1,656	672	549	176	110	47
29	21	16	14	21	26	144	1,513	664	517	166	99	46
30	21		14	20	23	241	1,433	636	492	159	92	45
31	21		13		22		1,485	651		156		45
Total	744	538	456	524	876.2	7,200	36,369	24,951	18,510	10,505	3,630	1,908
Mean	24.0	18.5	14.7	17.5	28.3	240	1,173	805	617	339	121	61.5

Table 8-1 (13)

Daily Runoff at Wang Pho Gaging Station

Year: 1973 Catchment Area. 6,500 km^2 (unit. m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	44	30	18	17	10	26	114	308	888	696	106	47
2	43	29	17	17	11	22	112	278	790	630	102	46
3	43	29	17	16	13	22	107	281	765	559	96	45
4	43	29	17	16	15	23	105	284	750	526	93	44
5	43	28	17	15	19	19	107	252	676	543	90	43
6	42	28	16	14	23	21	114	230	608	541	89	42
7	42	27	16	14	20	21	201	226	543	513	87	41
8	41	27	16	14	17	25	262	230	494	459	84	41
9	41	27	16	14	17	33	293	214	481	418	82	41
10	41	26	17	13	17	37	325	194	469	423	80	40
11	41	26	17	13	18	36	568	177	430	428	82	39
12	40	26	17	13	17	35	842	168	380	368	89	38
13	40	26	16	13	17	31	644	169	380	327	84	38
14	40	26	16	13	18	27	678	194	514	286	78	37
15	39	26	16	12	17	26	699	290	472	259	76	37
16	39	25	16	12	17	124	616	376	417	241	74	36
17	39	25	16	12	17	450	522	382	406	221	70	35
18	38	25	15	12	17	1,036	686	361	490	208	68	35
19	38	25	16	13	20	1,419	737	414	526	192	66	34
20	37	25	18	12	19	1,610	806	524	544	185	66	34
21	37	24	20	13	18	1,304	824	588	548	174	66	33
22	37	24	20	13	20	925	755	588	592	166	63	33
23	36	24	18	13	19	480	664	647	622	162	62	33
24	36	23	19	12	18	338	566	795	664	151	61	32
25	35	20	23	12	19	270	495	1,015	829	144	60	31
26	35	18	26	12	21	216	486	1,295	961	136	58	30
27	35	18	22	11	22	184	462	1,349	866	130	56	30
28	34	18	21	11	22	160	430	1,223	866	126	53	29
29	34		19	11	21	139	382	1,092	864	122	52	28
30	34		18	10	21	124	332	1,103	885	117	49	28
31	34		17		22		310	1,074		112		27
Total	1,201	704	553	393	562	9,183	14,244	16,321	18,720	9,563	2,242	1,127
Mean	38.74	25.1	17.8	13.1	18.1	306 1	459	526	624	308	74.7	36.3

Table 8-1 (14)

Daily Runoff at Wang Pho Gaging Station

Year: 1974 Catchment Area. 6,500 km^2 (unit. m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	27	19	13	14	29	339	164	312	496	239		
2	27	19	13	14	56	361	176	290	481	242		
3	26	19	12	15	53	333	140	267	498	240		
4	26	19	12	15	32	224	127	240	514	239		
5	26	18	12	17	23	164	122	256	516	224		
6	26	18	13	15	21	178	124	246	477	215		
7	25	18	14	16	19	212	143	231	459	230		
8	25	18	15	15	18	212	182	221	433	299		
9	25	17	19	14	17	208	242	224	430	393		
10	25	17	19	13	16	246	279	207	392	438		
11	25	16	18	13	17	328	267	195	366	567		
12	24	15	17	14	17	367	239	194	391	735		
13	24	15	15	15	19	319	217	253	374	1,036		
14	24	15	14	15	20	296	221	682	337	1,003		
15	24	15	13	15	20	288	245	1,110	315	899		
16	23	14	14	15	20	462	255	1,327	295	934		
17	23	14	16	14	19	518	246	1,605	282	909		
18	23	14	17	14	20	464	221	2,238	290	821		
19	22	14	16	14	33	409	199	2,996	271	761		
20	22	13	15	13	31	320	190	3,698	280	850		
21	22	13	14	11	28	291	190	3,919	327	878		
22	22	13	15	11	29	267	221	2,620	302	854		
23	22	13	15	11	39	224	244	2,066	300	816		
24	22	13	14	11	40	212	251	1,189	284	778		
25	21	13	14	11	42	201	253	886	300	711		
26	21	13	15	11	108	194	248	764	327	640		
27	21	13	14	12	93	182	246	711	366	588		
28	21	13	13	15	141	160	244	692	320	558		
29	21		13	15	106	135	242	616	274	567		
30	21		14	16	163	125	254	564	247	609		
31	21		14		266		286	532		623		
Total	727	431	452	414	1,555	8,239	6,678	31,351	10,954	⌐18,896		
Mean	23	15.39	14.6	13.8	50.2	275	215	1,011	365	609		

Table 8-1 (15)

Daily Runoff at Lum Sum Gaging Station

Year. 1970 Catchment Area. 7,008 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	47	33	26	20	23	45	80	214	415	314	145	73
2	47	32	25	20	24	50	100	222	389	312	138	75
3	46	32	25	19	23	46	108	214	394	283	133	79
4	45	32	24	19	21	40	99	221	442	250	126	81
5	45	32	24	20	22	37	103	212	474	229	120	79
6	44	31	24	24	22	36	132	215	509	212	115	78
7	44	31	24	25	22	30	182	206	515	202	112	76
8	43	30	23	24	22	28	229	194	573	200	108	73
9	42	29	23	24	24	27	231	198	604	202	105	69
10	42	29	23	24	26	28	200	193	586	230	102	66
11	42	30	23	24	22	31	182	183	527	230	99	64
12	41	30	23	23	21	37	166	190	497	206	96	63
13	41	29	22	24	20	42	152	190	539	201	94	62
14	43	30	22	24	20	40	144	193	540	217	92	63
15	44	31	22	22	19	39	167	191	495	230	90	61
16	44	30	21	20	21	54	463	198	453	222	92	60
17	42	30	21	20	21	81	967	255	425	194	94	60
18	42	29	21	20	24	73	1,165	338	416	177	88	58
19	41	29	21	19	28	56	1,041	385	419	202	84	57
20	40	29	21	19	31	58	746	414	399	223	81	55
21	39	27	20	18	35	72	526	514	389	227	80	54
22	39	29	21	18	33	70	403	709	387	226	79	52
23	38	29	21	17	36	73	330	657	393	217	80	51
24	38	28	21	17	35	74	283	558	379	201	88	51
25	38	27	22	17	41	86	246	560	367	197	89	51
26	36	27	30	16	40	97	224	625	341	186	80	50
27	36	26	28	19	36	93	225	648	326	175	75	50
28	35	26	25	25	32	84	248	811	329	180	73	50
29	34		24	24	29	75	235	550	343	192	72	48
30	34		23	22	30	77	214	503	328	174	72	47
31	33		22		53		214	449		156		46
Total	1,265	827	715	627	865	1,679	9,805	11,010	13,193	6,667	2,902	1,902
Mean	40.8	29.5	23.1	20.9	27 9	55.9	316	355	440	215	96.7	61.3

Table 8-1 (16)

Daily Runoff at Lum Sum Gaging Station

Year: 1971 Catchment Area: 7,008 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	45	30	26	25	21	30	233	842	469	213	124	60
2	44	30	25	24	23	36	222	650	488	221	117	59
3	43	29	24	22	24	41	208	547	480	248	113	58
4	43	29	24	22	23	36	205	474	452	268	120	57
5	42	29	23	21	23	35	199	429	438	261	125	56
6	41	28	23	20	24	41	198	398	424	256	114	55
7	40	28	22	20	25	47	194	412	402	260	105	54
8	40	28	22	20	31	56	210	425	367	260	101	53
9	39	27	22	20	31	92	254	453	341	257	98	52
10	39	27	22	20	28	150	294	472	319	240	105	52
11	38	27	22	20	26	472	303	462	314	235	119	50
12	38	26	22	20	26	708	313	448	293	310	107	49
13	37	26	22	20	24	680	314	445	268	364	95	48
14	37	26	22	20	29	514	292	453	252	321	89	47
15	37	26	21	21	22	341	367	471	243	262	84	46
16	37	26	21	21	22	228	612	486	231	228	83	55
17	36	26	20	20	21	169	672	460	236	205	80	45
18	36	25	20	19	20	142	561	452	239	188	77	45
19	36	25	20	19	20	147	456	403	281	174	75	44
20	35	25	20	20	20	341	416	376	410	164	73	43
21	35	25	20	22	20	451	462	380	402	159	72	42
22	34	25	21	33	32	440	567	415	332	157	70	41
23	34	25	20	26	23	467	554	518	280	152	69	41
24	33	25	21	26	26	452	548	546	249	141	68	40
25	33	24	20	25	27	413	835	496	238	134	66	40
26	33	24	22	24	28	362	1,404	452	234	129	65	39
27	32	25	28	23	31	308	1,632	426	237	129	63	39
28	32	26	27	21	30	256	1,859	417	241	132	63	39
29	31		25	21	30	220	1,827	440	237	147	62	38
30	31		25	22	30	216	1,601	418	225	143	62	38
31	31		24		30		1,210	445		135		39
Total	1,142	742	696	657	780	7,891	19,022	14,493	9,622	6,493	2,664	1,454
Mean	36.8	26.5	22.4	21.9	25.2	263	613	468	334	209	88 8	46 9

Table 8-1 (17)
Daily Runoff at Lum Sum Gaging Station

Year: 1972 Catchment Area 7,008 km^2 (unit. m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec
1	40	28	22	16	20	35	352	1,654	684	511	197	118
2	39	28	22	16	18	38	315	1,709	681	551	190	113
3	38	28	22	16	16	40	270	1,694	653	541	183	108
4	37	27	22	18	15	53	248	1,534	595	508	177	105
5	37	27	22	19	14	77	279	1,240	547	513	175	102
6	36	27	22	27	13	66	392	972	511	541	172	99
7	36	27	21	27	13	195	461	832	566	533	166	98
8	35	26	21	26	12	363	503	814	866	529	171	98
9	35	26	21	22	12	392	477	774	1,041	552	207	97
10	34	26	21	22	11	783	448	687	925	513	204	96
11	34	26	21	19	11	1,077	406	633	773	478	176	94
12	34	25	21	19	11	804	584	589	716	417	161	92
13	33	25	21	24	11	563	1,392	553	691	418	151	91
14	33	25	21	26	11	433	2,143	582	656	396	144	90
15	32	26	20	24	11	335	2,669	623	618	388	140	88
16	32	26	20	31	10	260	2,993	607	558	420	142	85
17	32	25	21	34	11	217	3,026	615	521	417	147	82
18	32	25	22	23	12	187	2,723	679	188	368	166	81
19	31	25	20	23	30	172	2,171	737	522	312	163	79
20	31	26	21	22	114	229	1,538	811	742	352	143	78
21	31	26	20	19	163	298	1,068	871	850	361	134	78
22	31	26	20	17	130	268	839	887	765	334	130	76
23	30	25	20	16	89	249	753	821	669	306	129	75
24	30	24	20	15	85	219	785	732	597	286	131	74
25	30	24	21	14	85	194	1,073	669	567	269	166	73
26	30	24	26	14	75	177	1,579	655	590	255	181	72
27	29	23	21	14	64	160	1,846	692	629	243	169	70
28	29	23	20	18	52	159	1,787	705	596	234	148	69
29	29	22	20	22	43	186	1,630	697	561	223	133	68
30	29		21	24	37	265	1,536	680	537	214	124	67
31	28		22		35		1,584	687		205		66
Total	1,017	741	655	617	1,232	8,512	37,868	26,415	19,715	12,248	4,819	2,682
Mean	32.8	25.5	21.1	20 6	39.7	284	1,221	852	657	395	161	54 2

Table 8-1 (18)
Daily Runoff at Lum Sum Gaging Station

Year: 1973 Catchment Area: 7,008 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	64	41	28	28	20	44	156	373	985	765	142	69
2	64	40	28	27	22	38	149	347	851	701	137	68
3	63	39	27	27	26	38	147	344	820	621	133	67
4	62	38	27	26	28	35	142	347	807	581	128	65
5	61	38	27	26	32	32	146	316	737	602	125	64
6	60	38	27	25	39	34	151	290	663	603	121	63
7	59	38	27	25	35	33	162	277	594	573	118	62
8	58	37	26	26	31	42	209	285	546	517	114	62
9	58	37	26	25	29	54	246	271	530	469	111	61
10	56	36	27	25	28	59	265	247	515	473	109	59
11	56	35	27	24	30	58	456	227	487	484	110	58
12	55	35	27	24	35	56	767	215	443	432	116	57
13	54	35	26	23	29	51	680	213	435	390	114	56
14	53	34	26	23	30	46	723	241	549	361	107	56
15	52	34	25	23	29	43	761	337	521	331	102	55
16	52	34	26	23	29	142	681	422	467	310	100	54
17	51	34	24	23	29	440	583	435	448	288	96	53
18	50	33	24	23	33	864	593	418	455	269	92	52
19	49	33	24	23	35	1,460	772	451	558	255	91	51
20	49	33	29	23	33	1,728	827	558	598	240	91	51
21	48	32	35	23	32	1,471	835	638	602	227	90	50
22	47	32	35	23	30	910	779	637	641	215	88	50
23	46	31	35	24	31	557	700	687	677	206	85	49
24	45	30	36	23	30	417	598	821	729	197	83	48
25	45	29	40	22	31	344	516	1,050	872	189	83	48
26	44	29	46	22	33	285	504	1,343	859	181	78	47
27	43	29	38	21	37	244	486	1,465	774	173	76	46
28	43	28	33	21	37	214	456	1,351	772	167	73	45
29	42		31	21	35	188	414	1,198	772	161	71	44
30	41		29	20	35	168	378	1,126	786	154	70	44
31	41		27		35		364	1,109		149		43
Total	1,611	962	913	712	963	10,095	14,646	18,041	19,493	11,284	3,054	1,697
Mean	51.9	34.3	29.4	23 7	31 1	336	472	582	650	364	102	54.7

Table 8-1 (19)

Daily Runoff at Lum Sum Gaging Station

Year 1974 Catchment Area: 7,008 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	43	32	26	21	39	376	215	374	528	279	365	105
2	42	31	26	21	70	400	206	356	512	288	343	102
3	42	31	26	22	69	372	183	325	526	286	314	100
4	41	31	26	22	42	272	166	316	542	283	282	97
5	41	31	26	24	32	216	160	319	543	267	260	93
6	41	30	26	25	29	213	161	309	510	257	248	92
7	40	30	26	24	27	260	181	289	490	249	245	89
8	40	30	26	21	26	260	216	274	468	244	242	87
9	40	30	26	20	24	251	277	282	466	245	229	85
10	39	29	26	20	23	301	327	263	435	270	215	83
11	39	29	25	20	24	436	319	243	412	351	208	81
12	38	29	25	20	26	493	285	239	432	466	221	78
13	38	29	25	24	27	459	257	279	420	686	229	76
14	38	29	24	22	28	426	254	639	381	696	218	74
15	37	28	25	22	27	419	293	1,025	372	609	198	73
16	37	28	25	21	26	560	303	1,235	348	644	185	71
17	36	28	29	20	24	640	279	1,479	331	624	175	69
18	36	28	29	21	26	544	260	2,085	349	561	168	68
19	36	28	28	19	45	441	241	2,270	329	504	162	66
20	36	29	27	19	42	360	237	3,156	340	553	156	65
21	36	30	25	18	37	330	238	3,250	386	588	149	63
22	35	31	25	17	40	298	266	2,829	355	568	143	62
23	35	31	25	17	53	275	305	1,860	357	549	137	61
24	34	29	25	17	53	276	310	1,194	342	514	133	59
25	34	28	26	16	53	318	313	905	352	471	128	58
26	33	27	26	16	129	322	306	764	382	420	124	57
27	33	27	25	16	202	318	303	712	406	384	120	56
28	33	27	25	20	188	299	299	699	382	359	115	55
29	33		25	22	145	265	298	638	331	360	111	54
30	32		25	26	195	231	319	591	297	384	108	54
31	32		25		305		352	555		385		52
Total	1,150	820	799	613	2,076	10,631	8,129	29,754	12,324	13,344	5,931	2,285
Mean	37.1	29.3	25.7	20.4	66 9	354	262	959	410	430	198	73 7

Table 8-1 (20)

Daily Runoff at Lum Sum Gaging Station

Year: 1975 Catchment Area: 7,008 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	51	38	29	25	19	33	240	216	345	381	218	77
2	51	37	34	26	19	35	292	196	333	368	196	76
3	50	37	38	30	23	40	301	182	323	397	176	74
4	50	37	34	26	27	54	285	189	301	426	164	73
5	49	36	32	26	30	80	262	228	290	445	158	71
6	48	36	30	25	28	110	240	261	361	424	152	70
7	47	36	29	25	27	121	237	306	453	392	144	69
8	48	36	28	25	31	124	256	339	502	390	137	69
9	48	36	28	24	31	166	284	393	505	373	135	68
10	47	35	30	25	35	339	331	430	467	393	132	67
11	47	34	29	24	54	307	333	459	412	408	134	66
12	47	34	28	24	64	218	317	582	369	390	131	66
13	49	33	28	23	45	172	333	841	362	380	138	67
14	52	33	27	22	36	154	413	934	386	360	129	63
15	53	32	27	22	35	149	387	940	375	502	124	60
16	53	32	26	21	34	155	352	1,005	336	518	138	58
17	51	32	27	21	32	148	325	964	387	424	135	57
18	47	32	28	21	30	156	310	814	392	355	128	55
19	46	32	27	20	29	179	348	669	362	312	122	55
20	46	31	28	20	28	252	383	582	341	289	116	54
21	54	31	27	20	28	268	363	510	326	287	107	53
22	54	31	26	19	28	231	333	453	317	276	100	52
23	48	30	26	20	31	213	307	423	340	252	97	51
24	46	30	25	20	38	213	275	410	371	241	93	51
25	43	30	25	21	39	185	247	416	425	231	89	50
26	42	29	25	23	37	157	220	400	480	217	86	49
27	41	29	25	23	36	151	216	384	453	210	83	48
28	40	29	25	21	40	156	237	372	424	220	82	47
29	39		25	20	37	163	240	375	404	239	80	47
30	38		24	19	35	175	252	372	399	236	79	46
31	38		24		33		242	368		231		45
Total	1,463	928	864	685	1,039	4,904	9,161	15,013	11,541	10,607	3,803	1,854
Mean	47.1	33.1	27 8	22.8	33.5	163	295	484	385	342	127	59.8

Table 8-1 (21)
Daily Runoff at Lum Sum Gaging Station

Year 1976 Catchment Area 7,008 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	45	30	21	22	23	126	77	274	361	291	270	83
2	44	29	21	20	23	149	75	283	347	275	302	82
3	44	29	21	20	24	186	101	279	345	286	308	81
4	43	28	21	22	25	195	194	276	326	260	273	79
5	43	28	21	22	25	168	262	289	335	280	241	77
6	43	28	21	21	26	149	413	259	375	279	229	76
7	42	26	21	22	27	139	414	238	527	255	222	74
8	41	27	21	22	31	135	379	254	1,013	238	214	73
9	41	27	20	21	37	114	315	272	1,182	242	202	71
10	40	27	20	20	47	100	265	311	914	265	198	69
11	40	27	20	20	45	85	246	415	716	354	203	68
12	39	27	20	19	45	75	226	547	591	311	186	66
13	39	27	19	19	32	73	239	679	549	281	166	65
14	38	26	19	19	32	70	259	797	510	254	154	64
15	36	26	21	18	30	66	252	754	552	249	146	63
16	36	25	21	18	29	65	247	614	534	243	139	61
17	36	25	23	18	27	62	259	533	516	243	132	61
18	35	25	21	18	26	59	252	472	500	272	123	60
19	35	25	20	18	26	58	249	432	462	258	123	59
20	35	24	19	17	28	57	301	432	434	235	117	58
21	34	24	18	17	26	58	393	459	424	263	114	57
22	34	23	18	18	27	61	433	458	417	345	112	57
23	34	23	20	18	35	65	407	420	391	326	104	55
24	33	23	24	17	64	72	361	398	382	372	101	54
25	33	23	24	20	73	89	327	410	381	383	99	53
26	32	22	22	19	79	111	316	416	366	323	95	52
27	32	22	21	18	104	107	318	395	355	324	93	51
28	31	22	20	18	163	95	318	374	318	389	91	50
29	31	21	20	19	170	64	318	369	345	349	89	50
30	31		18	21	146	80	305	363	318	307	86	49
31	30		18		139		282	360		274		48
Total	1,150	741	634	581	1,634	2,953	8,803	12,832	14,766	9,026	4,931	1,966
Mean	37.1	25.5	20.4	19.4	52.7	98.4	284	414	492	291	164	63.4

Table 8-1 (22)
Daily Runoff at Lum Sum Gaging Station

Year: 1977 Catchment Area. 7,008 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	47	32	24	23	21	47	89	884	319	205	102	48
2	47	32	24	22	20	66	97	662	315	281	101	47
3	46	32	24	22	19	81	96	504	300	254	96	45
4	45	31	24	23	19	87	99	452	280	238	88	44
5	45	31	24	25	20	86	120	548	257	213	83	43
6	45	30	24	23	24	77	205	801	268	203	79	42
7	63	30	24	22	23	62	336	1,013	360	191	77	42
8	69	30	24	22	24	48	317	909	678	203	75	41
9	52	29	23	21	24	39	309	695	798	223	75	41
10	46	29	23	20	26	34	310	547	760	201	73	40
11	44	29	23	20	26	31	239	452	1,030	191	70	39
12	42	28	23	20	24	32	171	416	1,322	171	68	39
13	42	28	22	19	23	35	130	386	1,298	157	66	38
14	41	28	22	19	23	38	116	367	1,105	146	64	38
15	40	28	22	19	27	36	107	365	880	139	62	38
16	40	28	24	18	29	33	99	330	725	137	61	37
17	39	27	26	18	26	30	101	299	624	139	60	36
18	39	27	26	18	24	29	128	300	551	135	58	36
19	38	27	24	18	32	29	129	355	492	129	57	35
20	37	27	24	19	32	33	110	499	445	118	56	35
21	37	26	23	20	32	37	102	511	423	112	54	37
22	37	26	24	22	31	47	98	532	407	107	54	39
23	36	25	24	24	28	49	177	538	397	103	53	36
24	36	25	24	22	27	50	362	551	387	99	52	35
25	36	25	24	22	27	57	398	554	358	96	51	33
26	35	25	23	25	43	60	417	929	329	94	51	33
27	34	24	23	23	41	59	399	490	303	99	50	32
28	34	24	26	24	33	68	357	434	261	101	50	33
29	33		22	23	29	80	355	385	265	103	50	33
30	33		23	21	29	89	481	354	257	108	49	32
31	33		23		35		861	330		105		31
Total	1,291	783	729	633	840	1,549	7,313	16,392	16,214	4,861	1,985	1,178
Mean	41 6	28 0	23.5	21	27	52	236	529	540	157	66	38

Table 8-1 (23)
Daily Runoff at Lum Sum Gaging Station

Year: 1978 Catchment Area 7,008 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	30	22	22									
2	30	22	20									
3	29	21	19									
4	30	22	18									
5	32	23	18									
6	32	25	18									
7	31	28	17									
8	30	26	17									
9	29	23	17									
10	28	22	16									
11	27	21	16									
12	27	20	16									
13	26	20	16									
14	26	20	15									
15	26	20	15									
16	25	20	15									
17	25	19	15									
18	25	19	15									
19	24	19	15									
20	24	19	15									
21	24	18	15									
22	24	19	15									
23	23	20	15									
24	23	20	14									
25	23	20	14									
26	23	20	14									
27	22	20	15									
28	22	21	15									
29	22	21	15									
30	22		15									
31	22		14									
Total	806	610	496									
Mean	26	21	16									

Table 8-1 (24)
Daily Runoff at Khao Chod Gaging Station (main stream)

Year: 1970 Catchment Area: 5,678 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	43 1	32.0	24.4	14.1	22.0	56.4	81 0	103	316	316	306	58 8
2	42 3	28.8	23 8	18 1	19 8	54.8	70 5	114	333	304	321	117
3	42.3	28 8	23 8	17 0	19.2	66.9	61.2	114	358	267	240	130
4	42 3	28 8	23.1	19 8	18.6	45.4	54 0	126	330	208	185	102
5	41 6	28 8	23 1	19 8	20.8	37 3	45.4	153	331	177	153	95.0
6	41.6	28 8	22 5	20 8	20 8	33.3	51.6	143	272	158	133	90 0
7	41.6	28 2	22 5	20.3	26.3	35 2	48.5	123	234	139	118	92 0
8	40 5	23 2	22.5	24 4	26 3	34.6	48.5	168	204	172	105	84.0
9	40.5	28.2	22 5	22.5	24 4	33.4	49.2	204	199	2?6	95.0	78 0
10	41.6	28.2	22.0	22.5	22 5	35 9	54 0	176	178	187	89.0	74.1
11	43 8	27.5	23.1	21.4	20.8	35 4	59.6	168	159	153	82.0	72.3
12	46 2	27.5	22.5	21.4	20 8	34.6	56.4	162	170	135	79.0	68.7
13	46 2	27 5	22 5	23.8	20 3	30.1	58.0	154	196	185	75.0	66.0
14	44.6	26.9	22.5	23.8	20.3	37.3	78.0	160	224	212	70.5	65.2
15	43.8	26.9	22.0	23.8	21 4	43.1	89.0	144	200	306	69 6	63 6
16	42.3	26.9	22.0	21.4	22.5	50.0	264	139	191	288	69.6	65.2
17	40.9	26.3	21.4	18.6	30.1	49.2	446	146	192	212	61.2	62.8
18	34.5	26.3	21.4	18.6	32.0	56.4	304	150	190	185	66 0	59.6
19	38.6	26.3	20.8	18.1	34.6	59.6	234	156	187	216	54.8	58.8
20	37.3	25.6	20.8	18.1	32 6	64.4	171	191	180	371	52.4	58.0
21	37.3	25.6	23.1	18.1	32.6	59.6	145	262	171	255	50.8	56.4
22	36.6	25.6	20.8	17.6	33.9	50.0	123	238	172	202	55.6	55.6
23	35.5	25.0	20.3	17.6	36 6	47.7	114	234	208	170	64.4	54.8
24	35.5	25.0	20.3	17.0	38.0	44.6	113	246	175	159	60.4	53.2
25	35.2	25.0	20.8	19.2	38.8	46.2	102	180	157	156	50.0	52.4
26	35.2	24.4	22.0	21.4	38.8	50.8	104	412	166	136	45.4	51.6
27	34.6	24.4	23.1	22.0	38.0	49.2	175	338	181	128	46.9	50.8
28	34.6	24.4	21.4	22.5	38.0	50.0	134	314	192	142	42.3	50.0
29	33.9		20.3	23.8	36.6	115	119	333	187	203	40.9	49.2
30	33.9		19.2	23.1	36.6	75.0	107	306	185	176	41.6	49.2
31	33.3		18 1		46.9		112	291		153		48.5
Total	1,227.2	755.4	678.6	615.2	890.9	1,482.4	3,671.9	6,148	6,438	6,291	2,923.4	2,132.8
Mean	39.6	27.0	21.9	20.5	28.7	49.6	118	198	215	203	97.4	68.8

Table 8-1 (25)

Daily Runoff at Khao Chod Gaging Station (main stream)

Year. 1971 Catchment Area: 5,678 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	53 4	33.7	23.0	24.8	21.2	39 3	98.0	200	257	140	184	45 6
2	51 8	33 7	23.0	24 2	23 0	35.1	90.0	179	247	142	136	45 6
3	51.0	33.0	23.6	24.2	20.6	35 8	83.0	159	366	113	111	44 9
4	50 2	32.3	26.0	24.2	20 6	37 9	79.3	143	302	189	98.0	43.5
5	49.4	31 6	23.0	23.6	21 2	34 4	83 0	131	290	178	91 0	43.5
6	48.6	30.9	24 2	23.6	23.6	33.7	84 0	131	247	153	82 0	42.8
7	47.8	30.2	24 2	23.6	28.1	35.8	95.0	147	214	152	77 5	42.1
8	47.0	30.2	23.0	23 0	28.1	40.0	89.0	159	186	137	74 8	42 1
9	46.3	25.5	22 4	23 0	31.6	46 3	95 0	162	178	181	82.0	40.7
10	44.5	28 8	24 2	23.0	34.4	137	102.0	153	177	164	76.4	40 7
11	44.2	28 8	26 0	24.2	28 8	258	98.0	157	168	158	73 0	40 0
12	43 5	28 1	24.8	24.2	28.1	218	94 0	150	151	148	71.2	39.3
13	43.5	27.4	23.0	23.6	21.2	152	88.0	161	138	145	68 5	38.6
14	42.8	26 7	23.0	23 0	19.5	100	89.0	158	131	137	64.9	37.9
15	42.8	26 0	21.8	21.8	20.6	83.0	161	162	126	120	62.2	37.9
16	42.1	26 0	21 2	21.2	18.5	73.0	206	151	127	101	60 4	37.2
17	42.1	26.0	21.2	21.8	17.5	66.4	148	140	137	92.0	57.7	36 5
18	41.4	25 4	20 6	21.2	18.5	58.6	121	131	186	92.0	55.9	36.5
19	40.7	25.5	20.6	20.6	17.5	59.5	148	131	193	88.0	54 2	36.5
20	40.0	25.5	20.6	22.4	18 0	72 1	226	135	174	86.0	53 4	35 8
21	39.3	25.5	20.0	27.4	19.0	73.0	254	150	157	85.0	52.6	35.1
22	38 6	28.8	21.8	27 4	20.0	70.3	212	186	158	81.1	51 8	35.1
23	37.5	27 4	21.8	26.7	24.2	68.5	188	202	131	79.3	51 0	35.1
24	37.5	26.0	21.8	26.7	23.6	73.0	358	191	118	74.8	49 4	34.4
25	37.2	24.8	21.2	26.0	32.3	85 0	806	186	121	73.0	49.1	34 4
26	37.2	24.2	22.4	24.2	32 3	97.0	808	177	114	73.0	47.8	33.7
27	36.5	24.8	23.0	21.8	33.0	89 0	578	174	111	74.8	47.8	33.0
28	36.5	24 6	23.6	23.0	42.8	79.3	522	200	103	99.0	48.6	33.0
29	36.5		24.2	25.4	35.8	76.6	394	202	99.0	161	47.8	32.3
30	35.1		26.8	25.4	30.2	100	306	206	91.0	162	45.6	34.4
31	34.4		30.2		36.5		244	209		206		36.5
Total	1,320.6	797.6	718.2	715.2	790.3	2,426.1	6,977.3	5,122	5,198.0	3,915.0	2,128.9	1,184.7
Mean	42.6	28.5	23.2	23.8	25.5	80.9	225	165	173	126	71.0	38.2

Table 8-1 (26)

Daily Runoff at Khao Chod Gaging Station((main stream)

Year: 1972 Catchment Area. 5,678 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	34 4	22.4	18.0	18.5	13 5	17.0	59.8	537	276		151	124
2	33.0	22 4	17.5	17.0	13 0	17.5	55.0	417	260		125	115
3	31.6	21.8	17.5	16 5	12.5	18.0	51.8	334	241		121	107
4	31.6	21.2	17.0	17.5	12 0	20.6	55.0	313	215		118	99.0
5	30.2	22.4	17 0	17.5	12.0	28.1	67.0	262	191		113	93.0
6	30.2	22.4	17.0	17.5	11.5	26.0	60.6	233	178		110	89.0
7	29.5	21.8	15.5	17.5	11.5	29.5	76.4	227	230		112	85.0
8	28.8	21.8	15.5	18.0	11.0	34.4	68.6	200	720		125	83.0
9	28.8	21.2	15.5	18.5	11.0	30 2	63.8	171	1,150		136	84.0
10	28.1	21.2	15 5	19.0	10.5	32.3	59.8	158	614		138	87.0
11	27.4	20.6	16 0	18.5	10.5	41.4	76.4	156	388		129	87.0
12	27.4	20.0	15.0	19.5	10.0	36.5	183	154	359		115	88.0
13	27.4	20.0	14.5	18.5	9.6	33.0	481	158	322		109	82.0
14	26 7	20.0	14.5	19.5	9.6	30.2	366	189	278		103	79.1
15	26.0	20 0	14.5	22.4	9.6	29.5	293	173	246		99.0	79.1
16	26.0	20.0	14.5	22.4	10.5	26.7	251	180	246		100	74.6
17	26.0	19.5	17.0	21.2	11.5	25.4	268	294	220		100	71.9
18	25.4	19.5	15.5	19.5	15.5	25.4	264	341	193		100	69.4
19	25.4	22.4	15.0	18.5	20.6	37.9	206	454	631		103	67.8
20	25.4	21 8	14.0	14 5	35.8	46.3	162	422			95.0	66.2
21	24.8	21.2	13.5	18.5	28.8	40.0	149	368			97.0	64 6
22	24.8	21.8	13.5	18.0	26.7	40.0	136	330			116	63.0
23	24.2	24 2	13.5	18.5	24.8	36.5	126	283			116	62 2
24	24.2	22.4	13.5	17.5	24.2	31.6	145	254			131	61.4
25	23.6	20.0	17.5	16.5	23.6	28.1	414	243			711	60.6
26	23.6	18.5	15.0	15.5	24.2	26.7	354	257		173	483	59.0
27	23.6	18.5	14.0	15.0	21.2	28.1	329	251		171	221	58.2
28	23.6	18.0	15.5	14.5	18.5	27.4	555	246		169	184	57.4
29	23.0	18.0	18.0	14.5	16.5	36.5	537	271		165	167	56 6
30	23.0		18.0	14.0	16.5	61.4	501	284		152	140	55.0
31	22.4		17.5		16 5		585	322		142		53.4
Total	830.1	605.0	485.0	535.5	503 2	942.2	6,999.2	8,484	6,958	972	4,677.0	2,382.5
Mean	26.8	20.9	15.6	17.9	16.2	31.4	276	274			156	76 9

Table 8-1 (27)

Daily Runoff at Hard Pana Gaging Station

Year: 1970 Catchment Area: 5,644 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct	Nov.	Dec.
1	38.8	29.5	24.1	19.9	26 2	58.0	86.6	97.4	322	299	194	84.2
2	38.8	29.5	23 5	19.9	28 3	57.0	72.6	101	338	259	180	109
3	38.0	29.5	23.0	19.2	31.4	64.0	61.0	111	354	221	156	108
4	38.0	28 9	23.0	19.2	29.8	42.4	55.0	134	333	186	139	86.6
5	37.2	28.9	22 4	18.5	27 6	32 2	52.0	147	328	166	127	81.8
6	37.2	28 9	22.4	18.5	26.2	32 2	50.0	124	278	153	118	74.8
7	37.2	28.3	22.4	17.8	29.0	31 4	50.0	118	248	144	110	74.8
8	37.2	28.3	21.8	17.8	35.4	31.4	48.0	148	216	174	105	71.5
9	37.2	27.7	21.8	17.1	41.5	31.4	51.0	175	211	174	99.8	68.2
10	36.5	27.7	21.8	17.1	42.4	31.4	55.0	151	190	163	96.2	67.1
11	35.8	27.7	21.3	16.4	39.7	33.8	57.0	147	174	143	90 2	65.0
12	39.5	28.3	21.3	16 4	37.9	29.8	56 0	143	184	137	90.2	64.0
13	44.0	27.7	21.3	15.7	37.9	27.6	68.2	134	229	163	87.8	61.0
14	41.8	27.1	20.8	17.1	42.4	30.6	85 4	134	221	170	86.6	60.0
15	38.0	27.1	20.8	17.8	51.0	43.3	105	134	200	184	85.4	59.0
16	36.5	28.3	20.8	17.8	50.0	51.0	270	139	186	153	85.4	58.0
17	35.8	30.9	20.2	18.5	46.0	46.0	272	150	198	144	79.4	57.0
18	35.8	29.5	20.2	19.2	38.8	37 0	254	151	194	143	74.8	55.0
19	34.4	29.5	20.2	19.2	36.2	33.8	206	163	189	184	73.7	54.0
20	34.4	27.7	19.6	19.9	31.4	50.0	158	210	174	267	71.5	53.0
21	33.7	27.1	19.6	19.9	29.8	60.0	135	272	175	202	70.4	52.0
22	33.7	26.5	19.6	20.6	29.0	52.0	119	250	189	170	74.8	51.0
23	33.0	25.9	21.8	21.3	32.2	49.0	114	224	206	150	89.0	51.0
24	33.0	25.3	21.3	22 7	38.8	43.3	108	254	174	148	99.8	50.0
25	32.3	24.7	22.4	22.0	44.2	47.0	98.6	340	168	146	92.6	49.0
26	31.6	24.1	22.4	22.7	42.4	47.0	91.4	386	160	132	80.6	48.0
27	31.6	24.1	23.0	23.4	33.0	47.0	104	330	172	127	69.3	48.0
28	30.9	24.1	23.0	24 1	30.6	47.0	123	310	195	139	66.0	47.0
29	30.9		22.4	24.1	32.2	45.1	114	332	169	175	65.0	46.0
30	30.2		22.4	24.6	36.2	84.2	104	320	205	147	65.0	45.1
31	30.2		21.8		38.8		113	291		139		45.1
Total	1,103.2	772 8	672.4	588.6	1,116.3	1,315.9	3,336.8	6,120.4	6,580.0	5,302.0	2,922.5	1,944.2
Mean	35.6	27.6	21.7	19.6	36.0	43.9	107.6	197.4	219.3	171.0	97.4	62.7

Table 8-1 (28)

Daily Runoff at Hard Pana Gaging Station

Year: 1971 Catchment Area: 5,644 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	44.2	30.6	24.1	17.3	24.9	43 7	106	227	258	139	120	44.7
2	43.3	30.6	24.1	16.6	19.5	35.7	96 4	201	258	147	97.7	44.7
3	42.4	29.8	24 1	16.6	17.3	33 2	87.3	181	378	145	87.3	43.7
4	42.4	29 8	24.1	16.6	17.3	31.5	82.4	164	300	191	82.4	42.7
5	41.5	29.0	23.4	15.9	18 0	29.0	88.6	152	281	174	77.6	42.7
6	40.6	29.0	22.7	15.9	21.1	26.5	87.3	153	247	150	72.9	41.8
7	39.7	29.0	22.0	15.2	22.6	29.0	102	174	222	153	71.8	41.8
8	39.7	28.3	22.0	15.2	21.8	34.9	92.5	188	200	136	69.6	41.0
9	39.7	28.3	22.0	15.2	28.2	53.6	103	189	193	168	80.0	40 1
10	38.8	28 3	22.7	15.2	26.5	164	110	177	191	153	76.4	39.2
11	38.8	27.6	26.2	16 6	21.8	283	103	184	184	155	68.5	39.2
12	37.9	26.9	24.1	16.6	20.3	234	97.7	177	166	144	67.4	38.4
13	37.0	26.9	23.4	15.9	16.6	171	92.5	199	153	144	65.2	37.5
14	37.0	26.9	22.0	15.2	15.9	109	96.4	188	144	130	63.0	36.6
15	37.0	26.9	21.3	13.8	16.6	83.6	201	191	140	110	59.8	36.6
16	37.0	26.2	20.6	13.1	13.8	77.6	218	176	136	106	57.8	35.7
17	37.0	26.2	20.6	13.8	12.4	66.3	158	166	139	99.0	55.6	35.7
18	36.2	25.5	20.6	13.8	14.5	57.8	142	152	191	93.8	54.6	34.9
19	36.2	25.5	19.9	13.1	13.1	63.0	156	153	198	91.2	53.6	34.9
20	35.4	25.5	19.9	15.2	13.8	76.4	249	156	177	88.6	52.5	34.0
21	34.6	24.8	19.2	21.1	15.9	74.0	270	172	150	88.6	52.5	34.0
22	34.6	24.8	21.3	20.3	16.6	74.0	239	215	153	86.0	51.5	33.2
23	33.8	24.1	21.3	19.5	19.5	72.9	205	216	130	83.6	49.6	33.2
24	33.8	24.1	21.3	19.5	26.5	78.8	439	200	126	78.8	48.6	33.2
25	33.8	24.8	20.6	18.8	29.0	93.8	737	198	126	75.2	47.6	32.3
26	33.0	24.8	22.0	16.5	28.2	109	705	186	116	75.2	47.6	32.3
27	33.0	24.1	22.7	14.5	32.3	95.1	533	186	99.0	77.6	47.6	32.3
28	33.0	24.1	23.4	15.9	36.6	83.6	494	205	168	93.8	48.6	32.3
29	32.2		24.1	18.0	31.5	81.2	403	198	161	102	47.6	33.2
30	32.2		29.0	18.0	25 7	113	321	196	156	109	45.6	34.0
31	31.4		24.8		28.2		266	211		119		35.7
Total	1,147.2	752.4	699.5	489.0	666.0	2,578.2	7,081.1	5,721.0	5,541.0	3,706.4	1,920.5	1,151.6
Mean	37.0	26.9	22.6	16.3	21.5	85.9	228.4	184.5	184.7	119.6	64.0	37.1

Table 8-1 (29)

Daily Runoff at Hard Pana Gaging Station

Year: 1972 Catchment Area: 5,644 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct	Nov.	Dec.
1	34.0	21.1	14 5	23.5	20 8	24 2	65 5	599	297	526	131	98.4
2	32.3	21.1	14 5	22.8	20.8	24 9	65.5	458	295	417	127	94 8
3	31.5	20.3	13.8	22 2	20.1	25.6	59.8	370	264	103	123	91 2
4	30.7	19.5	13 8	22 8	20.1	28.3	64.6	341	231	390	118	86.9
5	29 8	19.5	13.8	23 5	20.1	33.9	84.4	290	209	103	115	86 6
6	29.8	19.5	13 1	24.9	20.1	32 5	70.5	262	195	377	112	84.4
7	29.0	19.5	13.1	25 6	18.8	37 6	96 0	250	252	358	112	82.2
8	29 0	19.5	13.1	21.5	18 1	40.5	79.9	214	810	358	120	81.0
9	28 2	18.8	13.1	20.8	18.1	37.6	74 6	191	881	326	125	82.2
10	27.4	18 0	12.4	20 8	18.1	40.5	69.4	172	509	301	138	83.3
11	27.4	18 0	12.4	25 6	17.4	48 4	92 4	174	364	292	120	82.2
12	27.4	17.3	12.4	30.4	16.7	42 0	242	170	366	260	108	81.0
13	26.5	17.3	12.4	32.5	16 0	39 0	558	178	324	254	103	77.8
14	26.5	17.3	11.7	32.5	16.0	38 3	406	209	280	248	98.4	75.7
15	25.7	17.3	11.7	29.7	16.0	36.1	326	191	258	252	97 2	76.7
16	25.7	16.6	15 2	26.9	16.7	33.2	303	209	260	286	98.4	72.6
17	24.9	16.6	13.1	27.6	18.8	32.5	295	337	232	248	97.2	71.5
18	24.9	16.6	11.7	30.4	24.2	33.9	299	384	209	278	98 4	69.4
19	24.9	18.8	11.0	26.2	31.1	47.6	240	514	768	268	99.6	68.4
20	24.2	18 8	10.3	23.5	43.6	53.5	186	461	916	262	93.6	68.4
21	24.2	18.0	10.3	22.8	36.8	47.6	172	395	609	244	96.0	66.5
22	23.4	17.3	10.3	22.2	33.2	46.8	157	366	478	229	108	65.5
23	23.4	16.6	10.3	21.5	32 5	42.8	145	316	379	212	99.6	64.6
24	22.6	16.6	10 3	22.2	30.4	38.3	195	286	347	193	118	64.6
25	22.6	15 9	14.5	20 8	32.5	34.6	478	270	309	177	156	63.6
26	22.6	15.9	11.7	21 5	31.1	33.2	397	286	377	169	163	62.6
27	21.8	15 2	10.3	22 2	27.6	35 3	375	280	303	164	129	61.7
28	21 8	15.2	12.4	22.2	25.6	33 9	640	270	566	160	118	60 7
29	21.8	14.5	13.1	24.9	24.2	42.8	604	278	566	152	115	60 7
30	21.8		13.8	22.8	23.5	46.0	573	316	514	144	105	59.8
31	21 1		13.1		23.5		661	347		138		58.8
Total	806.9	516 6	387.2	736.8	732.5	1,131.4	8,073.6	9,384.0	12,368.0	8,489 0	3,442.4	2,305.8
Mean	26.0	17.8	12.5	24.6	23.6	37.7	260.4	302.7	412 3	273.8	114 7	74.4

Table 8-1 (30)

Daily Runoff at Hard Pana Gaging Station

Year: 1973 Catchment Area: 5,644 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	57.9	42.0	33.9	21.6	15.6	37.1	68 0	144	422	381	101	64 7
2	57.9	42.0	33 2	20.9	16.2	37.1	68.0	142	371	375	97.0	63 6
3	57.0	42 0	33 2	20.2	22.4	37.1	70 2	137	350	314	93.4	62 5
4	56.2	41.3	33.2	20 2	26.1	45.4	63.6	127	323	309	92.2	62.5
5	56.2	41.3	33 2	19 5	31.9	38.9	63.6	126	296	307	89.8	61.4
6	55.3	40.5	32.5	20 2	26.1	33.5	63.6	116	260	296	88.6	60.4
7	55 3	40.5	32.5	20.2	24.6	37.1	81.6	157	236	332	86.2	58.3
8	54.4	40.5	32.5	21.6	23 1	47 2	83.8	170	222	265	85.0	58.3
9	53 5	39.8	33.9	20.2	25.3	61.4	104	158	220	253	85.0	57.2
10	52.6	39.8	34.6	19.5	26 1	55 2	161	143	236	298	91.0	56.2
11	51.8	39 0	34.6	18.7	24 6	51 0	441	136	220	265	85.0	55.2
12	50.9	39.0	32.5	18.0	29.4	43.4	239	127	198	239	82.7	55.2
13	50.9	39.0	31.8	18.0	23.6	42.5	188	142	214	92.2	85.0	54 1
14	50.0	39.0	31.1	17.4	24.6	43 4	170	139	218	201	86.0	53.0
15	50.0	38.3	30.4	17.4	26.1	48.2	165	149	196	188	89.8	53.0
16	49.2	38.3	31.8	16.8	25.3	72.4	167	143	188	189	92.2	52.0
17	49.2	37.6	31.8	16.8	27.8	174	207	137	191	179	85.0	50.1
18	48.4	37.6	37.6	16.8	27.8	385	184	156	212	182	80.4	49.2
19	48.4	37.6	42.0	18.7	28.1	475	182	192	242	174	79.2	48.2
20	47.6	36.8	48 4	18.7	25.3	360	196	243	298	160	86.2	48.2
21	46.8	36.1	42.0	20.2	23.8	240	207	216	300	151	92 2	48.2
22	46.0	35.3	39.8	18.7	23.8	171	210	242	319	143	85.0	47.2
23	46 0	34.6	39.0	17.4	25.3	156	196	267	416	135	80.4	47.2
24	45.2	34.6	39.0	16.8	25.3	116	175	401	823	132	75.8	46.2
25	45.2	34.6	39.0	16.8	28.6	105	173	466	644	126	74.6	45.4
26	44.4	33.9	37.6	16.2	54.1	97.0	172	477	443	120	71.3	44 4
27	43.6	33.9	36.8	16.2	37.1	88.6	189	485	373	118	68.0	44.4
28	43.6	33.2	34.6	15.6	38.9	78.1	184	496	336	118	66.9	43.4
29	43.6		33.2	15.6	34.4	72.4	163	631	387	116	65.8	42.5
30	42.8		33.2	15.6	33.5	66.9	161	702	330	111	64.7	42.5
31	42.8		31.8		42.5		142	514		105		41.6
Total	1,542.7	1,068.1	1,090.7	550.5	858.3	3,309.9	4,942.4	7,881.0	9,484.0	6,374.2	2,504.4	1,616.4
Mean	49.8	38.1	35.2	18.4	27.7	110.3	159.4	254 2	316.1	205.6	83.5	52.1

Table 8-1 (31)

Daily Runoff at Hard Pana Gaging Station

Year: 1974 Catchment Area. 5,644 km^2 (unit· m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	41.6	30.2	22.4	27.9	70.3	60.0	69.1	205	253	186	200	87.0
2	41.6	29.4	22.4	25.5	85.8	72.6	65.6	168	272	205	224	85.8
3	47.7	28.6	22.4	28.7	45.5	64.4	62.1	139	289	186	192	83.4
4	40.7	28.6	22.4	30.3	36.2	95.4	58.9	125	269	178	168	81.0
5	40.7	27.8	29.4	27.9	30.3	129	61.1	112	252	173	154	79.8
6	39.8	26.9	26.9	26.3	27.1	99.0	71.5	117	231	182	182	77.4
7	39.8	26.9	26.1	24.1	25.5	97 8	87.0	152	224	159	192	77.4
8	38.9	26 9	26.9	22.7	24.1	93.0	113	171	252	160	182	78.6
9	38.9	26.9	25.3	21.2	24.1	91.8	111	143	247	158	158	76.2
10	38.9	26.1	25.3	24.1	22.7	228	128	139	223	206	166	73 8
11	38.0	26.1	25.3	22.7	22.7	153	117	131	216	278	165	72.6
12	38.0	26.1	23.8	26.3	24.1	111	104	164	214	786	150	70.3
13	37.1	25.3	23.8	27.9	24.1	97.8	121	194	219	821	142	69.1
14	37.1	25.3	24.6	25.5	25.5	89.4	111	632	213	484	142	67.9
15	36.2	25.3	24.6	28.7	27.1	87.0	99.0	504	186	432	128	66 7
16	36.2	25.3	25.3	25.5	26.3	90.6	93.0	500	181	371	122	65.6
17	35.3	25.3	26 9	22.7	25.5	87.0	85.8	766	178	330	118	65.6
18	35.3	25.3	26.1	21 2	30.3	87.0	84.6	945	184	292	126	63 2
19	35.3	25.3	24.6	19.8	31.1	77.4	89.4	1,150	181	324	142	62.1
20	35.3	25.3	23.1	19.1	38.0	72.6	84.6	774	171	305	122	61.1
21	34.4	25.3	23.1	18.4	47.5	78.6	116	598	182	274	113	60.0
22	34.4	26.1	22.4	17.8	54.6	81.0	133	455	164	257	109	58.9
23	33.5	24.6	23.8	17.8	51.5	81.0	125	403	170	240	106	58.9
24	33.5	24.6	27.8	17.2	47.5	77.4	121	341	166	219	102	57.8
25	32.7	23.8	26.1	22.0	43.5	84.6	117	312	224	203	99.0	56.8
26	31.9	23.1	25.3	23.4	51.5	89.4	112	312	399	187	96.6	55.7
27	31.9	23.1	23.8	25.5	50.5	88.2	158	312	364	181	94.2	55.7
28	31.0	22.4	23.1	32.7	55.7	83.4	153	285	258	179	91.8	54.6
29	31.0		23.1	51.5	63.2	73.8	178	278	218	184	89.4	54.6
30	31.0		25.3	47.5	63.2	67.9	181	265	203	200	88.2	53.6
31	30.2		29.4		67.9		211	240		182		53.6
Total	1,120.9	725.9	770.8	771 9	1,266.9	2,789.1	3,421.7	11,032.0	6,803.0	8,522.0	4,164.2	2,084.8
Mean	36.2	25.9	24.9	25.7	40.9	93.0	110.4	355.9	226.8	274.9	138.8	67.3

Table 8-1 (32)

Daily Runoff at Hard Pana Gaging Station

Year: 1975 Catchment Area: 5,644 km^2 (unit. m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	52.5	40.7	31.9	25.5	21 3	36.2	79.2	124	213	213	258	81.8
2	51 5	39.8	38.0	24.8	22.7	38.9	80.5	105	198	197	203	80.5
3	51.5	39.8	37.1	27.1	25.5	41.6	75 5	97.1	192	186	180	78.0
4	51.5	39 8	34 4	26.3	31.1	38.9	74.3	98.4	221	95.8	167	78.0
5	51.5	39 8	31.9	24.8	28.7	52.5	76 8	110	236	275	158	75.5
6	50.5	38.9	30.3	24.1	31.1	53.6	84.2	130	269	257	150	75 5
7	50.5	37.1	29.5	25 5	31.1	53.6	97.1	122	238	230	142	74.3
8	50.5	36.2	28.7	24.8	30.3	64.7	99 7	136	287	241	136	73.1
9	50.5	36.2	28 7	24.1	31.9	94.5	127	167	293	313	140	71.9
10	50.5	35.3	28.7	23.4	93.2	85 5	143	172	246	271	136	70.7
11	50.5	35.3	28.7	23.4	75 5	65.9	155	192	216	334	164	70.7
12	52.5	34.4	27.9	27.1	46 5	58.0	202	434	200	479	149	73.1
13	53.6	34.4	27.9	26 3	38.0	54.7	205	578	236	334	158	70.7
14	53.6	33 5	27.1	23.4	40.7	51.5	164	418	217	313	134	67.1
15	56.8	33.5	26 3	22.7	35.3	49.5	158	403	197	345	160	64.7
16	53.6	32.7	25.5	22.0	33.5	50.5	161	409	229	424	136	63.5
17	50.5	32.7	27.1	21.3	33 5	52.5	167	343	229	334	146	62.4
18	48.5	32.7	28.7	20.6	31.1	58.0	264	309	253	285	137	61.3
19	55.7	31.9	27.9	20.6	28.7	70.7	289	269	296	251	124	60.2
20	69.1	31.9	27.9	22.0	28.7	86 8	234	231	307	236	113	59.1
21	58.9	31.9	27.9	20.6	38.0	75 5	209	211	264	233	108	58.0
22	53.6	31.9	27.1	19.9	43.5	83.0	182	185	234	216	102	56.9
23	48.5	31.1	26.3	26.3	35 3	86.0	161	173	278	208	98.4	56.9
24	46.5	31.1	25.5	25.5	31.1	81.5	138	161	345	191	95.8	55.8
25	45.5	30.3	24.8	27.1	31.9	69.5	124	154	336	180	93.2	54.7
26	44.5	30.3	24.8	26 3	31.1	65.9	122	148	293	172	90.6	54.7
27	43.5	30.3	24.8	22.7	37.1	63.5	111	164	250	161	88.0	53.6
28	42.5	30.3	24.1	21.3	35.3	63.5	122	162	222	155	88.0	52.5
29	41.6		24.1	20.6	34.4	61.3	110	184	208	150	85.5	52.5
30	40.7		25.5	19.9	34.4	70.7	114	176	203	206	83.0	51 5
31	40.7		25.5		32.7		110	185		393		50.5
Total	1,561.9	963.8	874.6	710 0	1,123.2	1,880.8	4,439.3	6,756.5	7,406.0	7,884.8	4,023.5	2,009.7
Mean	50.4	34.4	28.2	23.7	36.2	62.7	143.2	218.0	246.9	254 3	134.1	64.8

Table 8-1 (33)

Daily Runoff at Hard Pana Gaging Station

Year: 1976 Catchment Area: 5,644 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	50.5	35.3	25 5	20.0	24 5	58.1	45.1	127	231	188	200	68 8
2	49.5	35.3	25.5	20.0	28.1	63.8	63 8	112	237	176	282	67.5
3	48.5	34.4	25.5	20.0	24.5	62.7	81.2	112	241	196	296	67.5
4	48.5	33.5	25.5	22.0	23.8	60.4	120	113	228	236	224	66 2
5	48.5	33.5	28.7	24.5	23.8	66.2	133	115	212	221	194	65.0
6	47.5	33.5	27.1	23.8	34.4	72.5	175	106	216	184	176	63.8
7	47.5	33 5	26.3	24.5	43.2	63 8	157	123	412	155	169	62.7
8	46.5	33.5	26.3	22.2	97.8	55.8	145	124	450	165	159	61.6
9	46.5	34.4	25.5	20.0	108.0	52.4	131	120	316	202	148	61.6
10	45.5	33 5	24.8	19.2	68.4	48.2	113	155	301	198	141	60 4
11	44.5	33.5	24.1	18.5	45.1	45.1	108	218	254	187	131	59.2
12	44.5	33.5	23.4	18.5	38.2	44.0	103	228	229	168	122	58.1
13	43.5	31.9	22.7	18.5	34.4	40 2	99.1	327	298	152	115	57.0
14	42.5	31.9	22.7	18.5	37.3	39.2	90.0	310	359	150	110	55.8
15	42.5	31.1	22.7	17.8	35.4	40.2	86.2	244	346	143	106	55.8
16	41.6	30.3	23.4	17.0	33.5	41.1	80.0	218	298	138	103	54.6
17	40.7	30.3	22.7	17.0	30.8	42.0	73.8	196	287	140	100	53.5
18	40.7	29.5	22.0	17.0	30.8	41.1	71.2	171	256	129	96.5	52.4
19	40.7	28.7	22.0	16.4	30.8	47.2	71.2	154	260	123	95.2	51.4
20	40.7	28.7	22.0	16.4	31.7	48.2	129	162	246	141	91.3	51.4
21	39.8	28.7	22.0	15.8	33.5	45 1	116	166	254	147	87.5	50.4
22	38.9	27.9	23.4	15.8	35.4	45.1	110	180	232	136	85.0	50.4
23	38.9	27.9	24.8	16.4	40.2	43.0	99.1	176	273	148	83.8	49.3
24	38.9	27.1	25.5	20.8	48.2	48.2	120	193	348	154	82.5	49.3
25	38.9	27.1	24.1	17.8	49.3	59.2	190	187	298	129	80.0	48.2
26	38.0	27.1	23.4	17.0	46.2	55.8	174	204	260	124	77.5	47.2
27	38.0	26.3	23.4	20.0	52.4	49.3	165	213	265	232	76.2	46.2
28	37.1	26.3	22.7	18.5	54.6	45 1	151	218	244	194	75.0	45.1
29	37.1	25.5	22.0	19.2	47.2	43 0	137	242	229	158	72 5	45.1
30	36.2		22.0	23.0	49.3	43.0	129	244	204	148	71.2	48.2
31	36.2		22.0		49.3		141	232		147		45.1
Total	1,318.9	893 7	743.7	577.1	1,325.1	1,509.0	3,607.7	5,696.0	8,284.0	5,099.0	3,850.2	1,718.8
Mean	42 5	30.8	24.0	19.2	42.7	50.3	116.4	183.5	276 1	164.5	128.3	55.4

Table 8-1 (34)

Daily Runoff at Hard Pana Gaging Station

Year: 1977 Catchment Area: 5,644 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	45.1	30.8	23.8	23.1	20.6	41.5	47.2	228	116	115	61.4	37.2
2	45.1	30.8	23.0	24.7	18.2	43.4	49.1	186	112	107	59.3	36.4
3	44.0	29.9	23.0	25.5	21.4	42.4	55.1	169	113	103	56.2	35.5
4	44 0	29.9	22.2	30.8	24.7	39.8	55.1	205	105	103	54.1	34.7
5	47.2	29.0	22.2	32.1	25.5	34.7	68.0	324	100	111	52.0	33.8
6	51.4	29.0	22.2	26.6	26.3	30.5	88.2	360	113	104	51.0	33.8
7	45.1	28.1	21.5	25.8	25.5	27.2	86.9	265	280	115	50 1	33.8
8	43.1	28.1	21.5	24.7	25.5	25.5	108.0	214	272	157	50 1	33.0
9	42.0	28.1	21.5	23.1	28.8	23.9	84.4	175	220	133	48.2	33.0
10	41.1	27.2	21.5	21.4	28.8	22.3	68.0	147	229	108	47.2	32.1
11	40.2	27.2	20.8	20.6	25.3	23.9	56.2	125	208	98.8	46.2	32.1
12	40.2	27.2	20.8	24.7	27.2	23.9	49.1	116	277	92.2	45.3	31.3
13	39.2	27.2	21.5	21.4	25 5	24.7	44.3	125	264	93.5	44.3	31.3
14	38.2	26.3	22.2	19.8	24.7	24.7	42.4	127	236	89.6	44.3	30.5
15	38.2	26.3	24.5	19.8	28.4	25.5	51.1	111	211	85.6	42.4	30.5
16	38.2	26.3	25.4	19.8	26.3	30.5	70.2	105	210	82.0	42.4	35.5
17	37.3	26.3	28,1	19.8	23.9	29.6	64.6	115	216	79.6	41.5	34.7
18	37.3	26.3	24.5	19.8	23.9	31.3	78.3	153	193	75.9	40.7	34.7
19	36.4	25.4	23.8	21.4	22.3	28.8	69.1	151	174	74.7	40.7	35.5
20	36.4	25.4	27.2	21.4	23.9	28.0	60.3	154	169	70.2	40.7	36.4
21	35.4	24.5	25.4	23.1	26.3	27.2	54.1	164	174	68.0	39.8	36.4
22	35.4	24.5	25 4	25.5	24.7	29.6	62.4	175	186	65.7	39.8	35 5
23	35.4	23.8	29.9	23.1	24 7	34.7	73.5	168	284	64.6	39.0	33.8
24	34.4	23.8	28.1	21.4	31.3	40 7	82.0	156	260	61.4	39.0	33.8
25	34.4	23.0	25.4	22.3	39.8	33.8	88.2	166	211	61.4	38.1	33.8
26	33.5	23.0	23.8	27.2	45 3	34.7	113	178	180	63.5	38 1	35.5
27	32 6	23.0	23.0	25.5	38.1	34.7	92.2	169	156	62.4	37.2	33.8
28	32.6	23.0	22.2	23.1	33.8	46.2	88.2	143	140	64.6	39.0	34.7
29	32.6		22.2	20.6	30.5	45 3	184	130	129	66.8	38.1	33.8
30	31.7		23.0	19.0	30.5	42.4	202	122	126	66.8	39 8	33.0
31	31.7		23.0		43.4		258	125		63.5		33.0
Total	1,199.3	743.4	732.6	697.1	864.9	971.4	2,682.2	5,251.0	5,664.0	2,706.8	1,346.0	1,052.9
Mean	38.7	26.6	23.6	23.2	27 9	32.4	86.5	169.4	188.8	87.3	44.9	34.0

Table 8-1 (35)
Daily Runoff at Hard Pana Gaging Station

Year: 1978 Catchment Area: 5,644 km^2 (unit: m^3/s day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep	Oct.	Nov.	Dec.
1	33.0	23 1	24 7	9 95	8 00	29 6	59 2	107	191			
2	31 3	23 9	23 9	9 95	9.95	28 0	49 0	124	467			
3	30 5	23 9	23 1	9.95	11 2	25 9	44 5	111	485			
4	30 5	25.5	22.3	9 95	11 2	25 2	64 0	121	119			
5	31.3	33.8	21.4	9 95	9 95	25 2	55 4	106	393			
6	31.3	34.7	19.8	9.30	9 30	25 9	67.0	107	355			
7	30.5	28 0	19.8	9.30	9 95	23 1	91 8	126	335			
8	30.5	25 5	19 0	9.30	11 2	24 5	114	182	316			
9	29.6	24.7	18 2	9.30	10 6	29 6	151	247	298			
10	29.6	23.9	17.4	9 30	16 4	33 6	116	315	310			
11	29.6	23 1	17.4	8 65	16 4	33.6	135	364	286			
12	28.8	23 1	16.7	8.65	16 4	34 4	122	601	268			
13	28.0	22.3	15.9	11 9	17 1	31.2	90.7	642	265			
14	28 0	21.4	15.9	13.8	16.4	32 0	74 0	1,250	273			
15	28.0	21.4	15.9	12.6	17.1	34.4	116	1,270	257			
16	28.0	20.6	15.2	11 9	19.7	30.4	79 0	625	234			
17	27.2	21.4	15.2	11 2	18 4	32.0	71 0	412	237			
18	27.2	20 6	15 2	10.6	25 2	41.1	63 0	389	234			
19	26 3	20 6	15.2	9.95	21.7	38 6	58 2	368	265			
20	26 3	21.4	15.2	9.95	23.6	42.0	62 0	335	323			
21	25.5	21.4	15.2	9 95	22.4	46.4	76.0	299	304			
22	25.5	24.7	16 7	9.95	19 7	41.1	106	311	439			
23	25.5	32.1	16.7	10 6	17 8	36 0	128	348	522			
24	25.5	28.8	15 2	9 95	16 4	45 4	121	465	404			
25	25.5	25 5	14.4	9 30	15 2	47.2	100	381	558			
26	24.7	27.2	13.7	8.65	15.2	42.0	87.4	394	540			
27	24.7	28 0	13.7	8.65	18.4	44.5	86 3	404	419			
28	24.7	28.0	13 7	8.65	26 6	65.0	97.6	417	528			
29	24.7		13.7	8 00	40 2	92.9	114	558	670			
30	23.9		13.0	8.65	31 2	74.0	131	810	1,000			
31	23.9		13 0		30 4		98.8	615				
Total	859 6	698.6	526.4	297.80	553.45	1,153.8	2,828.9	12,804.0	11,895.0			
Mean	27.7	25 0	17.0	9 9	17.9	38.5	91.3	413 0	396 5			

Table 8-1 (36)
Daily Runoff at Ong Kla Gaging Station

Year: 1970 Catchment Area: 8,320 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	44	34	24	17	19	72	93	114	334	314	332	98
2	43	31	44	17	18	80	80	113	352	342	327	149
3	42	31	43	18	17	63	66	118	382	296	256	159
4	44	31	23	19	16	45	62	131	358	242	210	133
5	42	31	23	21	18	39	53	155	360	206	183	119
6	41	30	22	24	20	35	50	145	299	185	165	112
7	41	30	22	23	23	36	50	129	265	174	150	113
8	41	30	22	22	22	35	50	163	235	212	137	104
9	41	30	22	22	21	34	52	191	221	432	128	96
10	41	30	42	23	20	36	56	173	204	211	122	91
11	40	30	22	25	18	38	63	165	187	184	117	86
12	42	30	21	26	17	34	60	161	191	175	114	82
13	48	29	21	22	16	30	61	155	223	210	110	78
14	50	29	21	23	16	32	85	168	252	244	106	75
15	43	29	20	20	18	43	103	172	222	311	105	74
16	42	29	20	18	22	50	236	162	204	291	104	76
17	41	30	20	17	26	47	362	155	212	232	97	72
18	40	30	20	16	30	39	274	171	214	211	92	68
19	39	33	20	16	33	36	216	178	215	236	89	66
20	39	30	20	15	33	46	170	206	201	337	86	64
21	38	29	19	15	36	58	147	280	197	470	84	62
22	38	27	19	15	34	53	147	263	211	224	89	60
23	37	27	19	14	34	50	121	447	236	198	99	60
24	36	26	20	15	39	45	116	466	409	189	95	58
25	36	26	22	16	48	47	109	355	196	184	82	57
26	35	26	23	40	50	53	117	435	183	168	78	56
27	35	25	24	43	40	51	141	373	189	161	80	56
28	34	25	22	41	34	51	137	341	210	177	75	56
29	33	25	22	20	34	51	124	355	202	222	73	53
30	33		21	19	37	78	113	342	427	403	75	52
31	33		20		42		113	320		189		50
Total	1,230	816	661	582	851	1,407	3,609	6,712	7,190	7,030	3,860	2,535
Mean	39.7	29.1	21.3	19.4	27 4	46.8	116	216	240	227	129	81 8

Table 8-1 (37)
Daily Runoff at Ong Kla Gaging Station

Year: 1971 Catchment Area: 8,320 km^2 (unit m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	50	33	26	25	27	63	111	224	211	164	207	53
2	48	33	26	23	23	60	103	200	267	163	169	53
3	48	32	28	22	24	51	94	180	344	164	137	51
4	47	32	26	21	23	46	99	165	312	202	122	50
5	46	31	24	20	26	41	93	154	281	204	111	49
6	46	30	23	19	29	38	96	152	262	178	103	49
7	45	30	23	19	36	39	106	167	234	170	96	48
8	45	30	22	19	36	44	102	181	209	163	92	47
9	44	30	22	18	39	61	105	185	201	200	92	46
10	43	29	24	18	42	140	115	175	196	191	95	45
11	42	28	26	18	35	250	113	175	188	183	96	44
12	42	28	25	19	29	231	108	172	174	173	84	44
13	42	28	23	22	24	176	100	181	161	170	81	44
14	41	27	22	21	23	122	101	180	153	160	76	42
15	41	27	21	21	23	95	163	180	146	141	74	42
16	40	27	21	19	22	83	220	172	146	128	71	41
17	40	27	20	21	21	74	168	162	162	119	69	41
18	40	26	20	19	41	66	139	152	203	113	67	40
19	39	26	20	19	20	66	151	152	214	109	65	39
20	39	26	20	21	20	79	226	156	199	104	63	39
21	38	26	22	25	22	81	253	167	182	102	62	39
22	37	26	22	26	24	78	223	204	183	100	61	39
23	37	25	21	24	27	77	200	220	155	97	60	38
24	37	26	21	24	27	80	340	209	143	92	58	38
25	36	26	21	24	35	94	735	205	144	88	56	38
26	36	26	24	22	39	109	752	200	137	89	56	38
27	36	25	23	21	42	101	564	197	135	120	55	37
28	36	27	23	20	53	90	493	218	183	185	56	36
29	35		24	23	44	86	392	221	182	75	56	36
30	34		30	23	38	103	313	227	190	190	54	38
31	34		27		42		261	228		232		41
Total	1,264	787	720	636	941	2,724	7,029	5,761	5,964	4,671	2,528	1,325
Mean	40.8	28.1	23.2	21.2	30.3	90.8	227	186	199	151	84.2	42.7

Table 8-1 (38)
Daily Runoff at Ong Kla Gaging Station

Year: 1972 Catchment Area. 8,320 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	38	24	18	19	17	20	72	561	294	550	161	164
2	38	24	18	18	17	20	64	440	285	484	154	151
3	36	23	18	18	16	22	62	359	262	443	147	141
4	36	23	17	18	15	24	64	334	291	430	141	132
5	35	23	17	19	15	32	78	287	214	498	136	124
6	35	22	17	20	15	30	73	256	202	763	131	118
7	34	22	17	21	14	35	92	245	250	529	133	114
8	33	22	17	18	14	41	82	221	737	460	152	111
9	33	21	17	17	13	37	75	195	1,041	413	161	114
10	32	21	16	17	12	38	74	184	683	365	161	117
11	32	21	16	17	12	49	91	177	477	356	153	117
12	31	21	16	17	12	44	199	176	405	313	137	110
13	30	21	16	22	12	39	488	245	356	303	131	104
14	30	21	16	29	12	38	325	208	309	303	124	100
15	29	20	17	28	12	36	316	194	275	320	119	99
16	29	20	19	26	12	31	280	202	275	382	120	95
17	29	20	18	24	13	31	285	302	244	338	127	90
18	23	20	17	30	16	32	285	359	227	338	127	88
19	28	22	16	24	24	44	237	465	945	332	125	85
20	28	22	15	21	40	56	189	437	1,550	322	117	84
21	27	21	15	18	35	48	175	382	802	296	113	82
22	27	22	15	17	32	48	163	350	603	271	145	80
23	27	25	15	17	30	44	150	306	469	249	149	78
24	26	22	15	17	29	38	170	278	424	232	164	78
25	26	20	19	17	27	35	413	267	397	223	543	76
26	26	19	16	16	30	33	374	279	476	223	390	75
27	26	19	15	17	25	34	355	275	534	208	270	73
28	25	18	17	16	22	33	561	263	402	200	231	72
29	25	18	17	20	20	42	561	285	525	192	213	71
30	24		17	20	19	71	522	301	561	180	187	70
31	24		18		20		599	335		170		69
Total	928	617	517	596	602	1,125	7,474	9,108	14,455	10,686	5,167	3,082
Mean	29.9	21.3	16.7	19.9	19.4	37.5	241	296	482	345	172	99.4

Table 8-1 (39)

Daily Runoff at Ong Kla Gaging Station

Year: 1973 Catchment Area 8,320 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	68	46	35									
2	67	45	35									
3	66	45	35									
4	65	45	34									
5	64	45	34									
6	63	44	33									
7	62	44	33									
8	61	44	33									
9	60	43	34									
10	60	42	35									
11	59	42	34									
12	58	42	34									
13	57	42	34									
14	57	41	33									
15	56	41	33									
16	56	40	33									
17	54	40	33									
18	54	39	41									
19	53	39	47									
20	53	38	49									
21	52	38	48									
22	51	38	47									
23	50	37	47									
24	50	36	45									
25	46	36	42									
26	48	36	38									
27	48	36	36									
28	48	35	36									
29	47		35									
30	47		34									
31	47		33									
Total	1,730	1,139	1,153									
Mean	55.8	40.7	37.2									

Table 8-1 (40)

Daily Runoff at Kaeng Riang Gaging Station

Year: 1970 Catchment Area: 10,802 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	47	33	25	22	25	57	90	127	349	275	253	98
2	47	33	25	20	26	79	95	117	373	374	373	131
3	46	33	24	22	24	74	83	119	405	355	343	164
4	45	33	24	23	24	65	72	130	408	308	279	163
5	44	33	24	25	24	50	68	159	407	255	234	140
6	44	32	24	36	27	45	62	171	381	222	208	128
7	44	32	24	33	28	41	63	155	331	199	184	122
8	44	31	23	33	29	43	64	160	296	218	166	119
9	44	31	23	36	29	42	63	193	271	257	154	110
10	44	31	23	29	28	41	64	204	253	269	144	103
11	43	32	23	30	26	43	68	183	232	231	136	98
12	42	33	23	31	24	44	73	176	230	208	130	93
13	46	32	22	32	23	40	70	171	234	247	126	90
14	51	31	22	36	23	42	63	193	271	257	154	110
15	50	31	21	29	23	41	101	186	278	331	119	84
16	44	30	21	26	28	52	140	183	252	352	119	84
17	43	30	21	24	31	57	339	178	240	309	113	84
18	42	31	20	23	36	52	398	189	251	270	107	80
19	42	31	20	22	39	45	307	197	247	253	102	77
20	41	32	29	20	43	43	243	204	247	373	99	75
21	40	30	20	20	43	55	191	284	230	416	96	77
22	40	29	29	20	45	63	160	323	239	325	99	71
23	39	28	22	20	43	59	141	300	257	278	104	69
24	38	27	26	20	44	58	135	290	265	243	111	68
25	37	27	25	26	50	56	128	335	234	233	100	67
26	37	26	26	24	58	53	120	447	220	220	92	66
27	37	26	24	26	57	60	137	456	210	206	88	65
28	36	26	24	30	47	58	153	402	227	206	88	64
29	35		23	28	43	59	145	386	243	229	86	64
30	35		22	28	44	60	130	397	232	259	86	62
31	34		21		59		125	380		237		60
Total	1,301	854	706	796	1,092	1,577	4,106	7,365	8,324	8,446	4,460	2,858
Mean	41 9	30 5	22.8	26 5	35.2	52.5	132	237	277	272	149	92 1

Table 8-1 (11)

Daily Runoff at Kaeng Riang Gaging Station

Year: 1971 Catchment Area: 10,802 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	60	40	33	33	27	53	124	320	328	219	253	62
2	58	39	31	30	32	68	119	275	361	193	221	61
3	57	38	31	28	32	59	111	243	357	197	177	61
4	57	38	33	27	29	53	104	217	413	209	151	60
5	56	38	31	25	31	51	98	198	370	250	129	58
6	55	38	29	24	34	46	103	185	343	235	123	58
7	55	37	28	24	39	44	105	166	314	210	114	57
8	53	37	28	23	41	48	118	208	261	201	107	56
9	52	36	27	22	41	54	114	219	257	210	103	55
10	52	36	27	22	44	81	123	214	242	243	112	54
11	51	36	28	22	44	198	130	207	232	237	101	53
12	50	35	30	23	37	298	125	209	223	244	95	53
13	50	35	29	25	33	249	120	200	203	217	93	52
14	52	36	27	27	30	180	114	212	191	213	90	51
15	50	33	26	28	28	125	131	209	182	189	86	50
16	50	33	25	27	28	102	229	211	179	168	83	49
17	48	33	25	25	26	89	233	199	189	153	80	48
18	47	33	24	25	25	81	180	189	232	143	77	48
19	47	32	24	25	25	76	159	179	286	135	76	48
20	46	32	24	26	25	81	196	187	287	129	73	47
21	45	31	25	27	25	89	283	198	251	126	72	47
22	45	31	26	31	28	95	292	268	237	122	70	46
23	45	31	27	32	30	91	255	308	216	116	69	46
24	44	33	26	29	33	92	245	293	187	112	68	46
25	44	31	26	28	33	97	593	272	179	106	67	46
26	43	36	25	28	42	111	809	268	175	103	65	45
27	43	36	28	26	45	120	715	256	172	105	65	44
28	43	34	27	24	50	106	601	271	174	109	65	44
29	42		33	25	54	97	539	290	220	166	65	44
30	41		29	28	46	95	449	295	218	209	63	44
31	40		35		44		376	295		243		44
Total	1,519	976	868	789	1,081	3,029	7,893	7,261	7,499	5,512	3,013	1,557
Mean	49.0	34.8	28.0	26.3	34.8	101	254	235	250	178	100	50.8

Table 8-1 (12)

Daily Runoff at Kaeng Riang Gaging Station

Year: 1972 Catchment Area: 10,802 km^2 (unit: m^3/s/day)

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	48	31	23	25	24	25	85	753	370	709	197	203
2	46	31	23	25	22	25	82	669	335	647	189	183
3	44	31	22	26	21	28	78	543	325	564	180	170
4	43	30	22	29	20	34	74	466	298	561	174	159
5	42	30	22	24	19	34	87	420	271	572	166	150
6	41	30	21	24	19	45	98	366	259	715	161	143
7	41	29	21	28	19	59	95	338	304	816	158	137
8	40	28	21	26	18	56	115	320	742	617	168	133
9	39	28	21	26	17	68	102	282	1,368	525	178	132
10	39	28	21	23	17	102	92	258	1,163	468	182	136
11	38	28	21	23	17	75	96	234	662	441	187	136
12	38	27	20	26	16	77	165	231	514	401	169	132
13	37	27	21	38	16	68	491	229	485	369	160	126
14	37	27	20	31	15	59	687	244	429	373	151	120
15	37	27	20	36	15	54	557	258	377	377	145	117
16	36	27	21	42	15	49	457	251	351	411	142	115
17	36	26	23	32	15	45	411	269	334	422	145	109
18	36	26	22	30	17	42	399	389	450	381	141	106
19	35	27	21	33	28	50	374	447	587	407	147	105
20	35	30	19	27	38	63	298	534	2,287	396	142	102
21	35	28	19	25	45	66	253	485	1,568	363	137	99
22	34	27	18	24	39	61	236	438	878	342	148	97
23	34	27	19	22	38	58	219	404	656	311	165	95
24	34	30	19	21	35	52	211	358	566	293	169	93
25	33	27	19	22	34	47	276	334	510	270	298	91
26	33	25	25	25	32	45	530	320	543	253	490	89
27	33	24	21	22	33	42	479	337	665	238	355	88
28	33	24	19	23	29	47	541	323	739	234	286	87
29	32	24	21	28	25	47	698	321	824	232	266	84
30	32		22	25	25	59	654	345	715	223	232	83
31	33		22		24		680	365		209		82
Total	1,154	804	649	811	747	1,582	9,620	11,534	19,572	13,140	5,828	3,702
Mean	37.2	27.7	20.9	27.0	24.0	52.8	310	369	652	424	194	119