

THE SOCIALIST REPUBLIC OF THE UNION OF BURMA

FEASIBILITY REPORT

ON

SOUTH NAWIN IRRIGATION PROJECT

VOLUME II

(APPENDIX— I)

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MARCH 1980

JAPAN INTERNATIONAL COOPERATION AGENCY

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CHAPTER I. INTRODUCTION

Personnel Contacted During The First Stage Survey

U Thein Myint	Director-General Foreign Economic Relation Department, MPF.
U Aung Ba	Director-General Irrigation Department, MAF.
U Hla Khin Maung	Director Irrigation Department, MAF.
U Htwe Myint	Dy. Director, ID, MAF.
U Yi	Director of Paddy Project, ID, MAF.
U Thein Tun	Executive Engineer, ID, MAF. (Planning and Design)
U Ba Aye	Executive Engineer, ID, MAF. (Survey)
U Sann Lwin	Engineering Geologist, ID, MAF.
U Aye Ko	Asst. Engineering Geologist, ID, MAF.
U Thein Tan	- do -
U An Swe	Asst. Engineer, ID, MAF.
U Tun Hla	- do -
U Kyaw Myint	- do -
U Kyaw Kyaw	- do -
U Hla Sein	Chief Drawing Section, ID, MAF.
U Maung Maung Tin	Asst. Engineer (Soil Labo), ID, MAF.
U Kyaw Tin	Sir Soil Sueveyor, ID, MAF.
U Kan Shin	- do -
U Oo Myint	- do -

U Aye Ko	Jr. Soil Sueveyor, ID, MAF.
U Maung Maung	Officer-in-Charge Aerial Survey Division, Suevey Department.
U Kyaw Hla	Dy. Director, C.S. Land Record Department, MAF.
U Zaw Pe	Dy. Director, C.S. Land Record Department, MAF.
U Khin Win	Managing Director, Agricultural Corporation (AC), MAF.
Dr. Myint Thein	General Manager, AC, MAF.
U Min Aung	- do -
U Ohn Saing	- do -
U Tha Tun Oo	Dy. General Manager, AC, MAF.
U Maung Maung Khin	- do -
U Mya Maung	- do -
U Tun Thein	- do -
U Kyaw Myint	Asst. General Manager, AC, MAF.
U Ba Toke	- do -
U Yee Aye	- do -
U Hla Aye	- do -
U Tin Htut Oo	Dy. Asst. General Manager, AC, MAF.
U Khin Maung Hla	Superintendent Engineer North Nawin Projecat (NNP), ID, MAF.
U Win Pe	Executive Engineer, NNP, ID, MAF.
U Tun Yi	- do -
U Myint Maung	Asst. Engineer, NNP, ID, MAF.

U Myint Than	Asst. Engineer, NNP, ID, MAF.
U Saw Harry	- do -
U Aung Kyaw Win	- do -
U Hla Toe	Dy. Div. Manager, AC Prome.
U Hla Aung Kyaw	Asst. Div. Manager, AC Prome.
U Khin Maung Nyo	Township G.L.R. Land Record Office, Prome.
U Thein Tun	Township Planning Office
U Win Naing	Tractor Station No.30 Agr. Mechanization Unit
U Thein Lwin	Township Dy. Manager, AC.
U Ohn Kyaing	Township Manager, AC. Paunde.
U Thin Nyunt	Village Tract Manager, Paukkuang
U Tin Ohn	Supervisor, Land Record, Paukkuang.
U Teik Tin Pyo	Immigration and Manpower Department
U Shwe	Township Veterinary Department
U Par	Dy. Manager, AC.
U Maung Maung	Mulberry Breeder, AC.
U Htin Zaw	Township Manager, AC.
U Lun Tin	Chairman, Peoples' Council, Paukkuang
U Kyin Ngwe	Secretary, Peoples' Council, Paukkuang
U Aung Kyi	Department Manager Trade Corporation (1)
U Thein Tun	Chairman, Peoples' Council, Thegon
U Lo Thein	Secretary, Peoples' Council, Thegon

U Hla Tun	Asst. Chief, Township Peoples' Council Office, Thegon
U Zaw Tom	Chairman, Party Unit Committee, Thegon
U Hla	Secretary, Party Unit Committee, Thegon
U Wan Maung	Chairman, Letpadaw Village East Labadaw, Villagetract
U Thaung Sein	Chairman, Executive Committee, Township Peoples' Council, Thegon
U Tun Shwe	Chairman, Chalyagon Village
U San Thein	Agri and Trade Corporation
U Thein Saw	Township Veterinary Officer
U Kyaw Thein	Township Land Record Officer
U Aung Min	Immigration and Manpower Department
U Nay Oo	Township Manager, AC.
U Kan Sein	Township Manager, Trade 1.
U Sein Win	Dy. Div. Manager, AC Mandalay
Daw Sein Sein	Asst. Farm Manager Central Farm, Kyawkse, AC.
U Nyunt Nwe	Asst. Farm Manager Central Farm, Kyawkse, AC.
U Aye Kyaw	Township Manager, Kyawkse
U Nyunt Lwin	Farm Manager, Central Farm, AC.
Daw Mya Mya	Asst. Farm Manager, Central Farm, AC.
U Tin Soe	Asst. Farm Manager, Central Farm, AC.
U Thaung	Farm Manager Mague Central Farm, AC.
U Win Naing	Dy. Div. Manager, AC Mague

Personnel Contacted During The Second Stage Survey

HE. U Ye Goung	Minister, M.A.F.
HE. U Kyaw Htain	Dy. Minister, M.A.F.
U Khin Maung Latt	Director-General, PSD, MAF.
U Thein Myint	Director-General, Foreign conomic Relation Department, MAF.
U Aung Ba	Director-General, Irrigation Department, MAF.
U Hla Khin Maung	Director, Irrigation Department, MAF.
U Tint Hlaing	Director, PSD, MAF.
U Htwe Myint	Dy. Director, ID, MAF.
U Yi	Director of Paddy Project, ID, MAF.
U Thein Tun	Dy. Director, ID, MAF.
U Maung Maung	Executive Engineer, ID, MAF.
U Ba Aye	- do -
U Lun Pe	Dy. Director, Survey Department, MAF.
U Myint Khine	Dy. Director, Mechanical Circle, ID, MAF.
U Sann Lwin	Engineering Geologist, ID, MAF.
U An Swe	Asst. Engineer, ID, MAF.
U Win Hlaing	- do -
U Tun Hla	- do -
U Way Pyaw	- do -
U Kyaw Myint	- do -
U Kyaw Kyaw	- do -
U Myo Myint	- do -

U Hla Sein	Chief Drawing Section, ID, MAF.
U Maung Maung Tin	Asst. Engineer (Soil Labo), ID, MAF.
U Kyaw Tin	Soil Surveyor, ID, MAF.
U Kan Shin	- do -
U Oo Myint	- do -
U Win	Executive Engineering Geologist, ID, MAF.
U Chit Lwin	- do -
U Saw Kyaw Tun	Assistant Engineering Geologist, ID, MAF.
U Thein Tan	- do -
U Win Tin	- do -
U Mya Tha	- do -
U Maung Maung Khin	- do -
U Tun Lin	- do -
U Hla Shwe	Work Charged Geologist, ID, MAG.
U Myint Soe	- do -
U Thein Set	- do -
U Soe Myint Aung	- do -
U Thet Tun	Sub-assistant Engineer, ID, MAF.
U Age Ko	Jr. Soil Surveyor, ID, MAF.
U Maung Maung	Officer-in-Charge, Aerial Survey Division, Survey Department, MAF.
U Kyaw Hla	Dy. Director, C.S. Land Record Department, MAF.
U Zaw Pe	- do -
U Khin Win	Managing Director, AC, MAF.
Dr. Myint Thein	General Manager, AC, MAF.

U Min Aung	General Manager, AC, MAF.
U Ohn Saing	- do -
U Ye Naing	Asst. General Manager, AC, MAF.
U Tin Win	- do -
U Ba Toke	- do -
U Sin Lin	- do -
U Yee Aye	- do -
U Lambang Naw	Dy. General Manager, AC, MAF.
U Maung Maung	Dy. Asst. General Manager, AC, MAF.
U Tha Tun Oo	Dy. General Manager, AC, MAF.
U Hla Aye	Asst. General Manager, AC, MAF.
U Hla Shwe	Dy. General Manager, AC, MAF.
U Tin Maung	- do -
Dr. Soe Tint	Dy. Asst. General Manager, AC, MAF.
U Kyaw Hla	B. Sc., B.L., D.M.A.
U Maung Maung Khin	Dy. General Manager, AC, MAF.
U Mya Maung	- do -
U Tun Thein	- do -
U Kyaw Myint	Asst. General Manager, AC, MAF.
U Tin Htut Oo	Dy. Asst. General Manager, AC, MAF.
LT. Col. Mg Mg Aye	Chief Engineer, EPC, MI.
Mr. C.K. Taikwel	Dy. Chief Engineer, EPC, MI.
U Kyaw Thein	- do -
U Sein Myint	Asst. Engineer, EPC, MI.
U Ba Than	Dy. General Manager, AFPTC.
U Tun Nyunt	Asst. General Manager, AFPTC.
U Soe Yin	- do -

U Saw Hla Sein	Dy. Director, TIC.
U Thaung	- do -
U Khin Maung Than	Divisional In-charge, TIC.
U BA Lay	Dy. Director, FERD.
U Khin Maung Hla	Superintendent Engineer, North Nawin Project (NNP), Irrigation Department (ID), MAF.
U Win Pe	Executive Engineer, NNP, ID, MAF.
U Tun Yi	- do -
U Myint Maung	Asst. Engineer, NNP, ID, MAF.
U Myint Than	- do -
U Saw Harry	- do -
U Aung Kyaw Win	- do -
U Bà Hla	Chairman, Peoples' Council, Prome
U Lun Tin	Chairman, Peoples' Council, Paukkaung
U Kyin Ngwe	Secretary, Peoples' Council, Paukkaung
U Aung Kyi	Department Manager, Trade Corporation (1)
U Thein Tin	Chairman, Peoples' Council, Thegon
U Lo Thein	Secretary, Peoples' Council, Thegon
U Zaw Tun	Chairman, Thegon Township Party Unit
U San Maung	Chairman, Prome Township Corporative
U Htay Maung	Vice Chairman, Prome Township Corporative
U Thet Tin	AC Township Manager, Prome
U Nay Oo	AC Township Manager, Thegon

U Thein Shwe	AC Township Manager, Paukkaung
U Par	AC Township Dy. Manager, Paukkaung
U Shwe	AC Junior Asst. Immigration Dept, Paukkaung
U Hla Aung Kyaw	AC Project Manager, (incharge of North Nawin Irrigation Area)
U Hla Toe	AC Dy. Divisional Manager
U Khin Maung Nyo	Township S.L.R. Land Record Office, Prome
U Maung Maung Khin	AFPTC Consolidated Township Manager, Prome
U Ohn Kyaing	AC, Seed Farm Manager, Paunde
U Aye Than	Supervisoty Manager, Myanma Agricultural Bank, Prome
U An Thein Aung	E.C. Member, Paukkaung Tsp Pary Party Unit
U Kyaw Thein	- do -
U Nyunt Maung	- do -
U Kyaw Myint	- do -
U Myat Soe	- do -
U Kyaw Aye	- do -
U Sein Tun	Secretary
Daw Aye Aye Thein	Head of the Dept of Corp. Ministry
U Myint Than	Tsp. Cooperative Manager, Prome
U Thein Maung	Chairman, Thegon Tsp Cooperative
U Aye Kying	Secretary, "
U Tin Oo	E.C. Member, Thegon Tsp Cooperative
U Ye	- do -
U Chan Aye	Asst. Engineer, Prome, EPC
U Hla Myint	- do -

U Khin Mg Latt	Engineer, Prome, EPC
U Soe Lwin	Engineer, Paukkaung, EPC
U Tin Aung	Engineer, Paungdale, EPC
U Thein Tun	Township Planning Office
U Win Naing	Tractor Station No. 30 Agr. Mechanization Unit
U Thein Lwin	Township Dy. Manager, AC
U Ohn Kyaing	Township Manager, AC, Pounce
U Thin Nyunt	Village Tract Manager, Paukkaung
U Tin Ohn	Supervisor, Land Record, Paukkaung
U HLa Tun	Asst. Chirf, Township Peoples' Council Office, Thegon
U HLa	Secretary, Party Unit Committee, Thegon
U Wan Maung	Chairman, Letpadaw Village East Labadaw, Villagetract
U Thaug Sein	Chairman, Executive Committee, Township Peoples' Council, Thegon
U Tun Shwe	Chairman, Chalyagon Village
U San Thein	Agri and Trade Corporation
U Thein Saw	Township Veterinary Officer
U Kyaw Thein	Township Land Record Officer
U Aung Min	Immigration and Manpower Department
U Kan Sein	Township Manager, Trade 1
U Sein Win	Dy. Div. Manager, AC Mandalay
Daw Sein Sein	Asst. Farm Manager Central Farm, Kyawkse, AC
U Nyunt Nwe	- do -
U Aye Kyaw	Township Manager, Kyawkse
U Win Naing	AMD, Tractor Station No.30 Manager, Prome

U Kyunt Lwin	Farm Manager, Central Farm, AC
Daw Mya Mya	Asst. Farm Manager, Central Farm, AC
U Tin Soe	- do -
U Thaung	Farm Manager Mague Central Farm, AC
U Win Naing	Dy. Div. Manager, AC Mague

CHAPTER II. ECONOMIC AND SECTORAL BACKGROUND

Table 2-1 Composition of Estimated Active Labour Force of Workers and Peasants engaged in the Various Sectors during 1978/79. (in thousand)

<u>Serial No.</u>	<u>Sector</u>	<u>State Sector</u>	<u>Co-operative and Private Sector</u>	<u>Total (%)</u>
1.	Agriculture	66	8,294	8,360 (64.63)
2.	Livestock and Fishery	9	162	171 (1.32)
3.	Forestry	85	81	166 (1.28)
4.	Mining	66	2	68 (0.53)
5.	Processing and Manufacturing	169	799	968 (7.48)
6.	Power	15	-	15 (0.12)
7.	Construction	127	62	189 (1.46)
8.	Transport and Communications	107	323	430 (3.32)
9.	Social Services	188	74	262 (2.03)
10.	Administration	474	24	498 (3.85)
11.	Trade	57	1,182	1,239 (9.58)
12.	Workers n.e.s.	-	563	569 (4.40)
	<u>Total</u>	<u>1,363</u>	<u>11,572</u>	<u>12,935</u> (100.00)

Note: Source: Report to the Pyithu Hluttaw 1979/80.

Table 2-2 Annual Products of Paddy
and Export of Rice
(1961/62 to 1978/79)

<u>Fiscal Year</u>	<u>Products of Paddy</u> (million ton)	<u>Export of Rice</u> (million ton)
1961/62	6.726	1.676
1962/63		1.522
1963/64		1.441
1964/65	8.373	1.176
1965/66		0.989
1966/67		0.624
1967/68	7.647	0.345
1968/69	7.896	0.345
1969/70	7.859	0.527
1970/71	8.033	0.645
1971/72	8.046	0.588
1972/73	7.241	0.201
1973/74	8.466	0.197
1974/75	8.448	0.166
1975/76	9.062	0.330
1976/77	9.172	0.538
1977/78	9.313	0.562
1978/79 (provisional)	10.346	0.300

Source: Trade Corporation No.1
in 1961/62 to 1973/74.

Report to the Pyithu Hluttaw
in 1974/75 to 1978/79.

Table 2-3 Changes in Exports by Type of Commodity

<u>Type of Commodity</u>	(Unit: Million Kyats)									
	<u>1961/62</u>	<u>1970/71</u>	<u>1971/72</u>	<u>1972/73</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>1977/78</u>		
1. Agricultural Products	1,070.6 (84.2%)	389.7 (65.9)	439.8 (64.1)	332.6 (48.2)	524.5 (57.4)	783.9 (59.3)	885.8 (51.6)	1,069.7 (60.9)		
2. Animal and Marine Products	3.1	0.7	1.9	4.4	3.0	4.3	18.4	36.5		
3. Forest Products	134.9	140.0	154.6	209.1	231.8	287.0	383.9	398.1		
4. Minerals and Gems	52.6	52.5	65.6	123.3	103.4	100.3	106.5	195.5		
5. Others	5.6	1.6	2.4	10.4	36.1	16.1	19.8	28.0		
6. Total Domestic Exports	1,266.8			679.8	898.8	1,191.6	1,414.4	1,727.8		
7. Re-exports	5.0	6.6	21.7	10.4	14.2	131.0	301.3	29.1		
Total Exports (6 + 7)	1,271.8 (100.0)	591.1 (46.5)	686.0 (53.9)	690.2 (54.3)	913.0 (71.8)	1,322.6 (104.0)	1,715.7 (134.9)	1,756.9 (138.1)		

Table 2-4 Position of Peasant Families and Land Area Occupied by Them

Size of Holdings	1961/62		1974/75		1976/77	
	Peasant Families	Acres	Peasant Families	Acres	Peasant Families	Acres
1. Under 5 acres			2,708,407	6,073,798	2,738,661	6,170,913
2. 5 to 10 acres	2,337,965	8,381,099	1,041,202	7,496,579	1,053,799	7,572,266
3. 10 to 20 acres	353,509	4,676,830	467,071	6,564,665	469,694	6,593,002
4. 20 to 50 acres	88,878	2,396,795	111,099	3,067,091	107,256	2,972,959
5. 50 to 100 acres	4,706	288,418	1,847	118,502	1,756	110,757
6. 100 acres and above	557	104,303	290	169,146	305	173,036
<u>Total</u>	<u>2,785,615</u>	<u>15,847,445</u>	<u>4,329,916</u>	<u>23,489,781</u>	<u>4,371,471</u>	<u>23,592,933</u>
Average Holdings	5.7 ac (2.3 ha)		5.4 ac (2.2 ha)		5.4 ac (2.2 ha)	

Table 2-5 Sown Acreage and Production of Paddy

<u>Year</u>	<u>Sown Acreage</u> ('000 ac)	<u>Production</u> ('000 ton)	<u>Yield per acreage</u>	
			(ton/ac)	(ton/ha)
1961/62	11,359	6,726	0.592	1.463
1967/68	12,193	7,647	0.627	1.550
1968/69	12,402	7,896	0.637	1.573
1969/70	12,243	7,859	0.642	1.586
1970/71	12,294	8,033	0.653	1.615
1971/72	12,300	8,046	0.654	1.616
1972/73	12,014	7,241	0.603	1.489
1973/74	12,575	8,466	0.673	1.664
1974/75	12,793	8,448	0.660	1.632
1975/76	12,858	9,062	0.705	1.741
1976/77	12,547	9,172	0.731	1.806
1977/78	12,690	9,313	0.734	1.813

Source: Report to the Pyithu Hluttaw 1978/80.

Table 2-6 Land Utilization^{1/}

Particulars	(Thousand Acres)					
	<u>1961/62</u> ^{2/}	<u>1972/73</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>1977/78</u>
1. Net Area Sown	17,698	19,279	19,758	19,819	19,544	19,744
2. Fallow Area	7,220	5,305	4,914	4,881	5,141	4,969
3. Cultivable Waste Land	23,303	21,272	21,169	21,119	21,143	21,130
4. Reserved Forests	19,311	23,476	23,477	23,477	23,477	23,971
5. Other Forest Area	183,019	56,340	55,995	55,987	55,990	55,488
6. Other Lands		41,514	41,873	41,903	41,891	41,884
<u>Total</u>	<u>150,551</u>	<u>167,186</u>	<u>167,186</u>	<u>167,186</u>	<u>167,186</u>	<u>167,186</u>

Note: ^{1/} Source: Report to the Pyithu Hluttaw for 1976/77 and 1979/80.

^{2/} In 1961/62, land records offices were not yet opened in the States and thus the position of States data have been estimated in land utilization.

Table 2-7 Progress in Irrigated Area

(Thousand areas)

Year	Net Area Sown	Irrigated Area		Multiple Cropping Area under Irrigation		Irrigated Area of Paddy	
			%		%		%
1961/62	17,698	1,324	7.5	83	6.3	1,168	88.2
1964/65	19,623	1,941	9.9	160	8.2		
1969/70	19,219	2,020	10.5	270	13.4		
1970/71	19,512	2,073	10.6	265	12.8		
1974/75	20,023	2,412	12.0	358	14.8	2,155	89.3
1975/76	20,088	2,432	12.1	354	14.6	2,163	88.9
1976/77	19,838	2,318	11.7	333	14.4	2,055	88.7
1977/78	20,041	2,422	12.1	336	13.9	2,118	87.4

Major Changes

1961/62 to 1974/75

+ 13.1 %
(+ 0.9 % annum)

+ 88.2 %
(+ 4.4 % annum)

1974/75 to 1977/78

+ 0.1 %
(+ 0.02 % annum)

+ 0.4 %
(+ 0.1 % annum)

CHAPTER III. THE PROJECT AREA

Table 3A-1 Estimated Population in the Project Area

V. T.	0 - 18			19 - 59			Over 60			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
1. Karnat sint	521	511	1,032	534	647	1,181	94	106	200	1,149	1,264	2,413
2. Kartlartgon	469	475	944	631	738	1,369	109	118	227	1,209	1,331	2,540
3. Kwaytat	383	372	755	473	519	992	76	85	161	932	976	1,908
4. Kwaygaung	882	1,039	1,921	978	1,029	2,007	204	217	421	2,064	2,285	4,358
5. Gyopintha	857	740	1,597	1,347	1,562	2,909	216	225	441	2,420	2,527	4,947
6. Ngentawmee	439	455	894	560	593	1,153	98	105	203	1,097	1,153	2,250
7. Sinmyeswe	681	666	1,347	726	886	1,612	147	159	306	1,554	1,711	3,265
8. Zalet	331	361	692	395	474	869	64	81	145	790	916	1,706
9. Zigon	629	647	1,276	560	631	1,191	118	126	244	1,307	1,404	2,711
10. Ziotk	370	390	760	383	393	776	72	74	146	825	857	1,682
11. Nyawnggon	569	604	1,173	517	576	1,093	111	129	240	1,197	1,309	2,506
12. Nyawg Win	590	538	1,128	602	692	1,294	117	119	236	1,309	1,349	2,658
13. Nwekauk	397	365	762	410	523	933	73	82	155	880	970	1,850
14. Putigon	1,853	1,899	3,752	2,142	2,457	4,599	392	451	843	4,387	4,807	9,194
15. Peiketingen	160	133	293	172	199	371	28	27	55	360	359	719
16. Byatainn	452	462	914	389	425	814	81	83	164	922	970	1,892
17. Yonepintat	522	513	1,035	371	413	784	82	90	172	975	1,016	1,991
18. Yintait Myaw	793	789	1,582	881	1,034	1,915	162	179	341	1,836	2,002	3,838

(Thegon-1)

(Thegon-2)

V. T.	0 - 18			19 - 59			Over 60			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
19. Yeittha	152	139	291	271	308	579	37	38	75	460	485	945
20. Ywama	240	247	487	228	286	514	45	46	91	513	579	1,092
21. Ywathit	277	259	536	315	353	668	55	56	111	647	668	1,315
22. Linle	313	346	660	390	455	845	64	73	137	768	874	1,642
23. Letpunlonla	201	175	376	244	302	546	37	45	82	482	522	1,004
24. Laung Gyi	682	673	1,355	746	950	1,696	136	154	290	1,564	1,777	3,341
25. Leintan	169	135	304	184	213	397	28	27	55	381	375	756
26. Thabya Hla	428	442	870	480	562	1,042	82	99	181	990	1,103	2,093
27. Thapuncho	517	501	1,018	566	617	1,183	101	109	210	1,184	1,227	2,411
28. Innpawnga	462	437	899	493	568	1,061	89	91	180	1,044	1,096	2,140
29. Innma	1,864	1,801	3,665	2,855	2,360	5,215	379	406	785	5,098	4,567	9,665
30. Ohksway	121	122	243	110	139	249	19	20	39	250	281	531
31. Ohkpo	443	390	833	373	435	808	73	81	154	889	906	1,795
Total (Thegon)	33,394 (41.2)			40,665 (50.1)			7,090 (8.7)			81,149 (100.0)		

Source: Immigration Dept., Thegon

$$0 - 12 \quad 33,394 \times \frac{3}{4} = 25,045 \quad 13 - 18 \quad 33,394 \times \frac{1}{4} = 8,349$$

$$\text{Working Population (13 - 59)} \quad 40,665 + 8,349 = 49,014$$

$$\text{Working Population in the Pilot Scheme Area} \quad 49,014 \times \frac{6.3}{100} = 3,088$$

(Paukuang)

(1977)

V.T.	0 - 12			13 - 17			Over 18			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
1. Gyopin Wyong	320	325	645	576	594	1,170	444	480	924	1,340	1,399	2,739
2. Thabyataung	137	117	254	245	285	530	403	221	624	785	623	1,408
3. Kimmunchun	335	322	657	750	775	1,525	584	422	1,006	1,669	1,519	3,188
4. Nyakuaing	451	446	897	686	769	1,455	587	660	1,247	1,724	1,875	3,599
5. Chaungkaung	250	230	480	612	654	1,266	469	514	983	1,331	1,398	2,729
6. Inngakwa	-	-	N.A.	-	-	N.A.	-	-	N.A.	-	-	N.A.
7. Thit Yown Pyan	-	-	N.A.	-	-	N.A.	-	-	N.A.	-	-	N.A.
Sub-total			2,933			5,946			4,784			13,663
8. Ywa Paung	149	132	281	192	236	428	173	192	365	514	560	1,074
9. Yat Thit	465	456	921	742	767	1,509	617	630	1,247	1,824	1,853	3,677
10. Wet-toe	210	189	399	312	352	664	266	297	563	788	838	1,626
Sub-total			1,601			2,601			2,175			6,377
Total			4,534			8,547			6,959			20,040

Source: Immigration Dept., Paukuang

Estimatioin: Over 60 6,959 x 8/100 = 557 18 - 59 6,959 - 557 = 6,402

(Promo)	0 - 18			19 - 59			Over 60			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Pauktau (East)	-	-	N.A.	-	-	N.A.	-	-	N.A.	-	-	N.A.
Total (Promo)	-	-	N.A.	-	-	N.A.	-	-	N.A.	-	-	N.A.

FIG. 3B-1 CATCHMENT AREA OF RIVERS

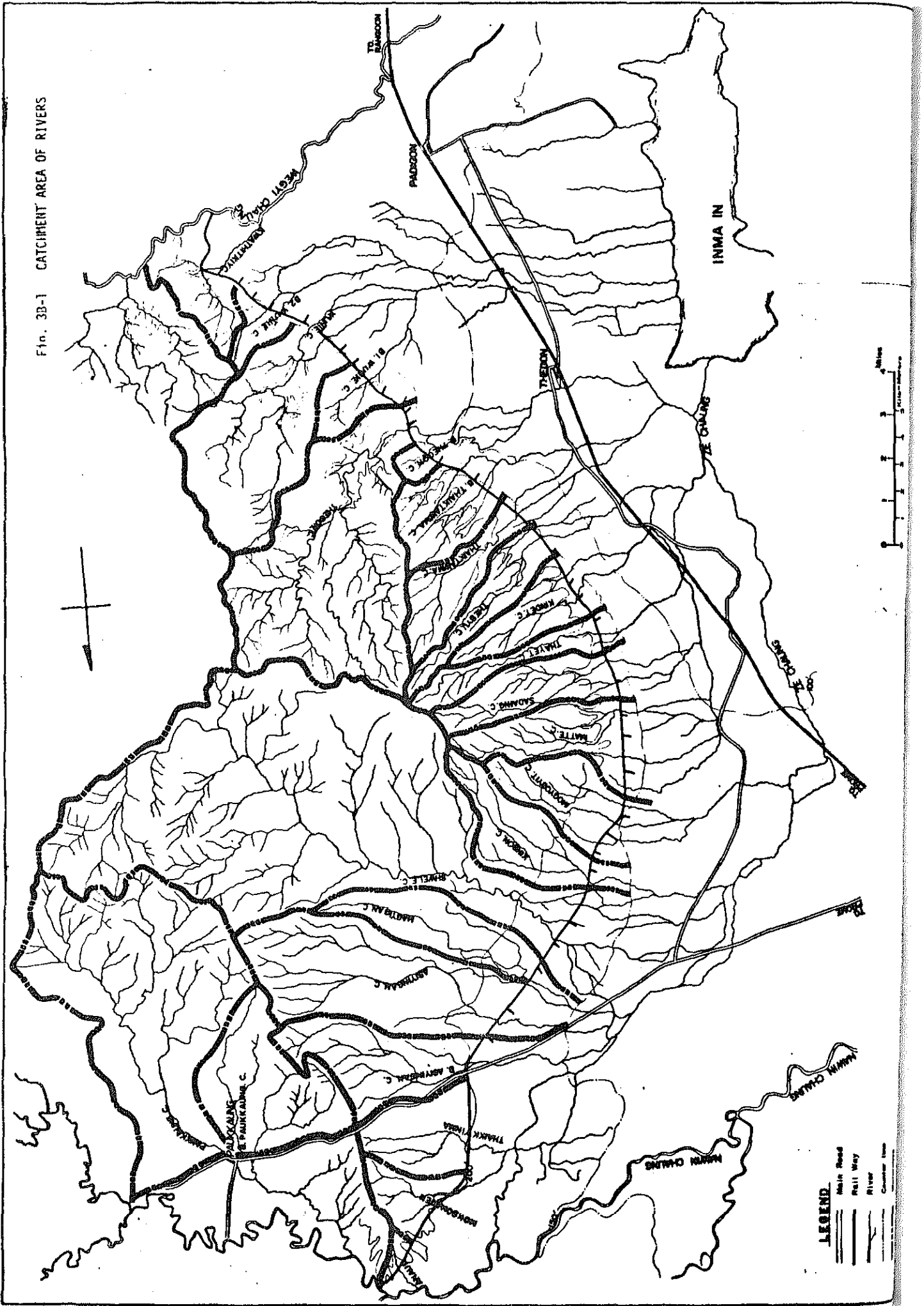


Fig 3B-2 - Annual Rainfall in 27 years (At Prome Station)

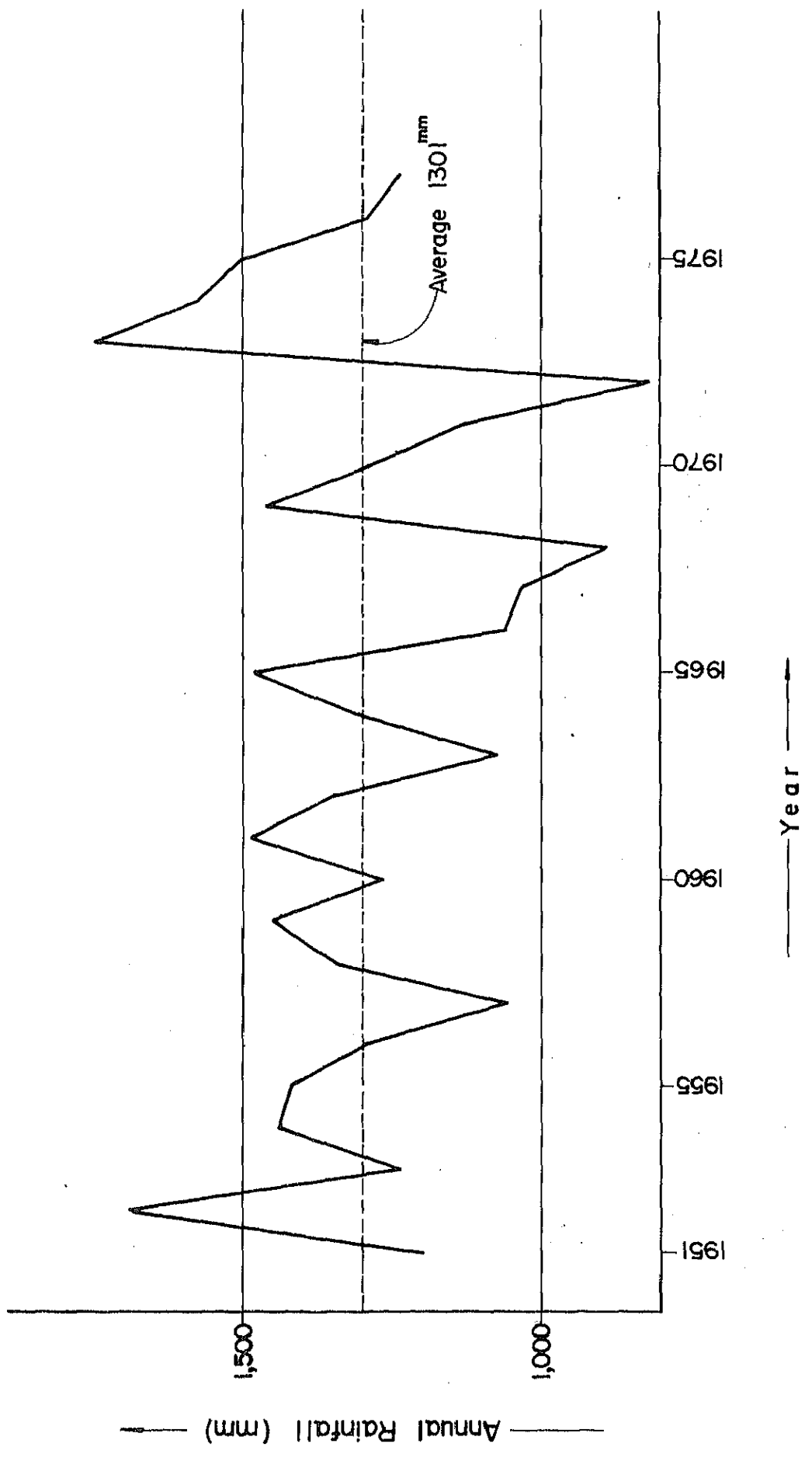


Table 3B-2 SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (1)

STATION-----		(UNIT = MILLIMETER)												
PROME		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
(F)	0.0	0.0	0.0	0.0	0.0	0.0	32.3	16.8	21.8	63.2	7.1	0.0	0.0	
(M)	32.0	0.0	0.0	7.4	53.9	125.9	43.5	52.0	25.9	25.9	34.5	0.0	0.0	
(L)	0.0	0.0	0.0	7.9	22.6	93.9	135.1	57.4	87.2	87.2	76.5	0.0	0.0	996.9
(F)	0.0	0.0	0.0	0.5	22.9	38.3	40.5	31.9	148.4	142.8	0.0	0.0	0.0	
(M)	0.0	0.0	0.0	1.8	45.2	79.2	182.9	85.3	73.7	0.0	0.8	0.0	0.0	
(L)	0.0	0.0	5.3	14.2	46.5	203.3	56.4	105.6	48.7	55.6	13.0	0.0	0.0	1442.8
(F)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(M)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(F)	0.0	0.0	0.0	0.0	0.0	0.0	13.2	26.9	0.0	0.0	0.0	47.8	55.4	
(M)	0.0	0.0	0.0	0.0	99.3	56.3	61.6	0.0	0.0	0.0	0.0	0.0	0.0	
(L)	0.0	0.0	0.0	0.0	0.0	87.3	71.9	0.0	0.0	0.0	40.1	0.0	0.0	
(F)	0.0	0.0	0.0	1.3	0.0	40.6	10.2	62.4	239.8	99.6	1.3	20.6		
(M)	0.0	0.0	0.0	2.8	11.3	177.8	16.3	22.6	2.3	39.1	0.0	6.1		
(L)	47.0	0.0	0.0	6.4	13.2	57.3	116.2	35.8	96.5	75.0	0.0	0.0		1201.5
(F)	0.0	0.0	0.0	0.0	10.5	101.6	92.5	44.0	39.6	42.1	31.2	0.0		
(M)	0.0	0.0	0.0	1.8	19.6	172.9	77.9	68.5	74.2	22.4	31.0	0.0		
(L)	0.0	0.0	0.0	7.9	86.0	105.7	191.6	113.1	114.6	238.0	0.0	0.0		1687.1
(F)	0.0	0.0	0.0	0.0	169.2	0.3	146.7	90.8	95.0	65.4	5.8	0.0		
(M)	0.0	0.0	0.0	6.3	37.0	51.1	9.5	105.0	30.5	8.4	14.5	0.0		
(L)	2.0	0.0	0.0	6.6	2.3	68.6	134.7	54.4	98.1	18.6	15.7	0.0		1236.5
(F)	0.0	0.0	0.0	0.0	19.5	86.9	72.7	95.8	60.2	143.3	6.3	0.0		
(M)	0.0	0.0	0.0	6.1	27.1	90.6	106.0	38.6	182.7	10.6	0.0	0.0		
(L)	0.0	0.0	1.0	0.0	129.6	66.9	25.6	35.2	104.6	121.8	0.0	0.0		1438.9
(F)	0.0	0.0	0.0	9.7	21.3	56.0	47.2	49.8	69.8	34.6	19.3	0.0		
(M)	0.0	0.0	0.0	0.0	148.2	118.3	84.2	61.4	44.5	60.2	42.4	0.0		
(L)	0.0	0.0	0.0	0.0	107.1	136.9	121.2	53.6	63.6	69.7	0.0	0.0		1419.0

SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (2)

*STATION-----		PROME												(UNIT = MILLIMETER)		
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL			
1956	(F) 0.0	0.0	0.0	0.0	4.1	94.0	40.4	19.6	22.1	37.6	0.0	0.0				
	(M) 0.0	0.5	0.0	0.0	193.7	58.8	74.0	62.7	101.0	106.5	0.0	0.0				
	(L) 0.0	0.0	0.0	13.1	71.8	51.4	172.7	65.1	55.9	19.3	0.0	0.0	1301.3			
1957	(F) 0.0	0.0	0.0	4.8	16.2	205.8	45.8	92.5	56.1	79.2	0.0	0.0				
	(M) 0.0	0.0	0.0	0.0	4.9	7.4	37.9	105.7	17.0	7.4	0.0	0.0				
	(L) 0.0	0.0	5.6	0.0	5.1	50.6	99.9	65.8	149.4	0.0	0.0	0.0	1057.1			
1958	(F) 0.0	0.0	0.0	1.5	39.6	42.4	59.6	43.0	40.6	11.4	27.0	0.0				
	(M) 0.0	0.0	0.0	0.0	42.4	154.0	72.0	109.7	88.6	106.2	0.0	0.0				
	(L) 0.0	0.0	0.0	4.6	2.8	69.1	204.6	59.9	100.3	65.7	0.0	0.0	1345.0			
1959	(F) 0.0	0.0	0.0	0.0	5.8	146.0	87.0	93.0	61.8	81.9	47.5	55.9				
	(M) 0.0	0.0	0.0	3.8	0.0	3.1	54.2	46.4	51.4	59.7	0.0	0.0				
	(L) 17.0	1.5	0.0	41.4	65.8	44.5	123.6	121.3	165.2	70.0	0.0	0.0	1447.8			
1960	(F) 0.0	0.0	0.0	0.0	26.7	21.1	110.5	109.0	38.6	68.9	14.2	12.7				
	(M) 0.0	0.0	0.0	0.0	10.4	231.7	17.3	102.9	90.0	79.6	0.0	0.0				
	(L) 0.0	0.0	0.0	1.3	102.7	21.6	26.2	77.4	98.5	2.8	0.8	0.0	1264.9			
1961	(F) 0.0	0.0	0.0	6.9	33.3	94.3	93.9	78.8	81.3	20.7	13.2	0.0				
	(M) 0.0	0.0	0.0	14.0	0.0	167.6	190.4	50.7	105.3	85.4	0.0	0.0				
	(L) 0.0	0.0	0.0	2.8	82.2	85.1	46.7	113.8	64.0	50.6	4.1	4.8	1489.9			
1962	(F) 0.0	0.0	0.0	0.0	5.1	91.5	31.4	33.6	54.1	34.0	2.5	0.0				
	(M) 0.0	0.0	0.0	0.0	47.0	253.0	133.8	115.6	128.9	57.4	0.0	0.0				
	(L) 0.0	0.0	0.0	6.2	45.3	51.6	108.9	5.5	55.7	88.9	0.0	0.0	1350.0			
1963	(F) 0.0	0.0	0.0	0.0	15.3	55.7	81.1	195.3	86.0	40.3	0.0	9.6				
	(M) 0.0	0.0	0.0	3.1	21.6	56.0	39.7	43.5	66.6	7.3	0.0	1.4				
	(L) 0.0	0.0	0.0	0.0	35.6	44.1	119.6	45.8	30.1	75.4	0.0	0.0	1073.1			
1964	(F) 0.0	0.0	0.0	0.0	41.1	94.0	40.4	19.6	22.1	37.6	0.0	0.0				
	(M) 0.0	0.5	0.0	0.0	193.7	58.8	81.6	62.7	101.0	106.5	0.0	0.0				
	(L) 0.0	0.0	0.0	13.1	71.8	50.4	172.7	65.1	55.9	19.3	0.0	0.0	1307.9			
1965	(F) 0.0	25.6	0.0	0.0	0.0	28.8	148.7	72.7	94.2	99.1	34.3	0.0				
	(M) 0.0	0.0	0.0	0.0	15.3	132.6	42.1	28.4	36.8	76.5	0.0	36.3				
	(L) 0.0	0.0	0.0	0.0	37.2	94.2	124.7	75.5	113.6	167.4	0.0	0.0	1484.0			

SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (3)

*STATION----- PRUME

		(UNIT = MILLIMETER)												
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1966	(F)	0.0	0.0	0.0	0.0	26.4	48.3	62.2	105.1	47.1	56.1	4.6	0.0	
	(M)	0.0	0.0	0.0	0.0	14.5	59.3	61.9	76.7	97.2	51.1	0.0	0.0	
	(L)	0.0	0.0	0.0	0.0	13.0	108.8	87.3	97.8	27.2	0.0	13.7	0.0	1058.3
1967	(F)	0.0	0.0	0.0	0.0	0.0	45.2	62.2	141.1	134.1	21.1	0.0	0.0	
	(M)	0.0	0.0	0.0	10.2	42.2	26.5	94.2	39.1	64.5	30.0	0.0	0.0	
	(L)	0.0	0.0	0.0	0.3	57.2	59.9	29.2	88.4	61.8	26.1	0.0	0.0	1033.3
1968	(F)	0.0	0.0	0.0	0.0	38.1	75.4	87.8	22.0	94.2	27.9	0.0	0.0	
	(M)	9.1	0.0	0.0	2.0	16.0	52.1	87.8	50.8	29.1	1.0	1.0	0.0	
	(L)	0.0	0.0	0.0	14.2	9.1	47.2	61.2	42.4	3.0	117.2	0.0	0.0	888.6
1969	(F)	0.0	0.0	0.0	0.0	0.0	124.9	33.2	121.1	138.9	23.1	28.9	0.0	
	(M)	0.0	0.0	0.0	2.0	6.1	74.2	95.2	122.2	12.2	1.0	0.0	0.0	
	(L)	0.0	0.0	0.0	0.0	315.5	69.1	118.9	49.5	108.9	17.0	0.0	0.0	1462.3
1970	(F)	0.0	0.0	0.0	0.0	20.0	66.1	88.1	39.6	78.0	23.0	5.0	17.8	
	(M)	0.0	0.0	0.0	0.0	3.0	48.8	80.3	124.9	98.7	136.0	9.6	0.0	
	(L)	0.0	0.0	0.0	1.0	133.0	15.2	88.2	114.3	31.2	60.9	0.0	0.0	1282.7
1971	(F)	0.0	0.0	0.0	0.0	42.0	100.0	89.0	84.0	8.0	34.0	11.0	0.0	
	(M)	0.0	0.0	0.0	6.0	4.0	55.0	76.0	22.0	12.0	10.0	0.0	0.0	
	(L)	0.0	0.0	2.0	0.0	36.0	46.0	99.0	104.0	60.0	232.0	0.0	0.0	1132.0
1972	(F)	0.0	0.0	0.0	1.0	5.0	68.0	22.0	71.0	30.0	16.0	7.0	0.0	
	(M)	0.0	0.0	0.0	18.0	0.0	99.0	52.0	72.0	5.0	8.0	0.0	0.0	
	(L)	2.0	0.0	0.0	1.0	34.0	33.0	73.0	63.0	51.0	17.0	68.0	0.0	816.0
1973	(F)	0.0	0.0	0.0	0.0	54.0	91.0	31.0	50.0	150.0	37.0	24.0	0.0	
	(M)	0.0	0.0	0.0	6.0	189.0	228.0	45.0	82.0	50.0	95.0	53.0	2.0	
	(L)	0.0	0.0	0.0	0.0	47.0	88.0	90.0	79.0	196.0	0.0	62.0	0.0	1749.0
1974	(F)	0.0	0.0	0.0	1.0	18.0	83.0	62.0	67.0	75.0	19.0	6.0	0.0	
	(M)	0.0	0.0	0.0	5.0	0.0	89.0	58.0	206.0	35.0	5.0	90.0	0.0	
	(L)	0.0	0.0	8.0	0.0	302.0	116.0	103.0	123.0	77.0	24.0	4.0	0.0	1576.0
1975	(F)	7.0	0.0	0.0	0.0	140.0	135.0	70.0	32.0	39.0	82.0	20.0	0.0	
	(M)	22.0	0.0	0.0	0.0	17.0	61.0	176.0	55.0	43.0	34.0	5.0	0.0	
	(L)	0.0	0.0	0.0	3.0	146.0	138.0	39.0	160.0	60.0	16.0	1.0	0.0	1501.0

SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (4)

STATION-----		PROME												
		(UNIT = MILLIMETER)												
YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1976	(F)	0.0	2.0	0.0	1.0	119.0	60.0	98.0	31.0	19.0	4.0	2.0	4.0	
	(M)	0.0	0.0	0.0	6.0	2.0	154.0	78.0	47.0	49.0	90.0	0.0	0.0	
	(L)	0.0	0.0	0.0	7.0	119.0	21.0	138.0	56.0	139.0	39.0	3.0	0.0	1288.0
1977	(F)	8.0	0.0	0.0	19.0	2.0	9.0	105.0	90.0	98.0	44.0	0.0	0.0	
	(M)	0.0	0.0	0.0	0.0	91.0	37.0	141.0	26.0	59.0	8.0	0.0	0.0	
	(L)	0.0	0.0	0.0	0.0	67.0	47.0	177.0	106.0	72.0	14.0	0.0	18.0	1238.0

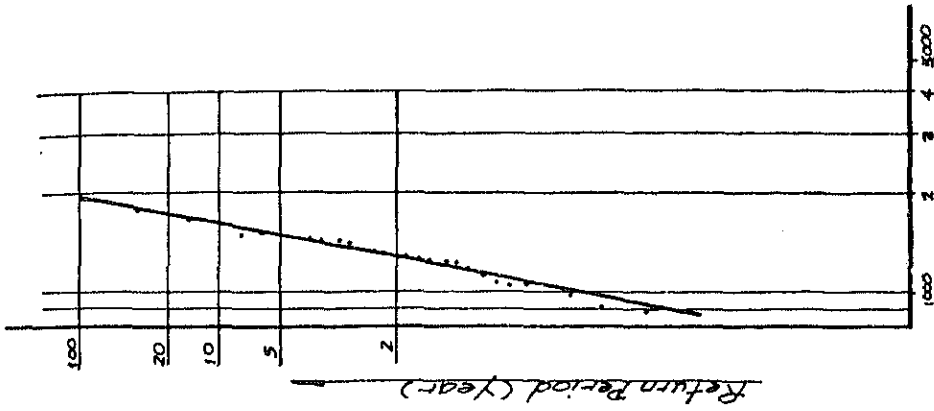


Fig. 3B-3 Probability Annual Rainfall at Prome 1947-1977. N=29

Year	Annual Rainfall at Paukayng (mm)	Annual Rainfall at Prome (mm)
1947	977	1444
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
1960		
61		
62		
63		
64		
65		
66	1207	1484
67		
68		
69		
1970		
71		
72		
73		
74		
75		
76		

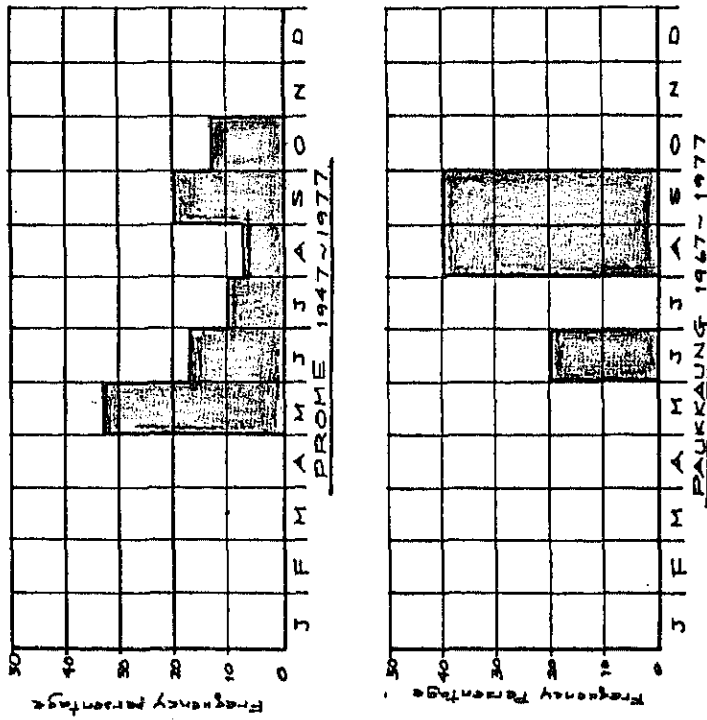
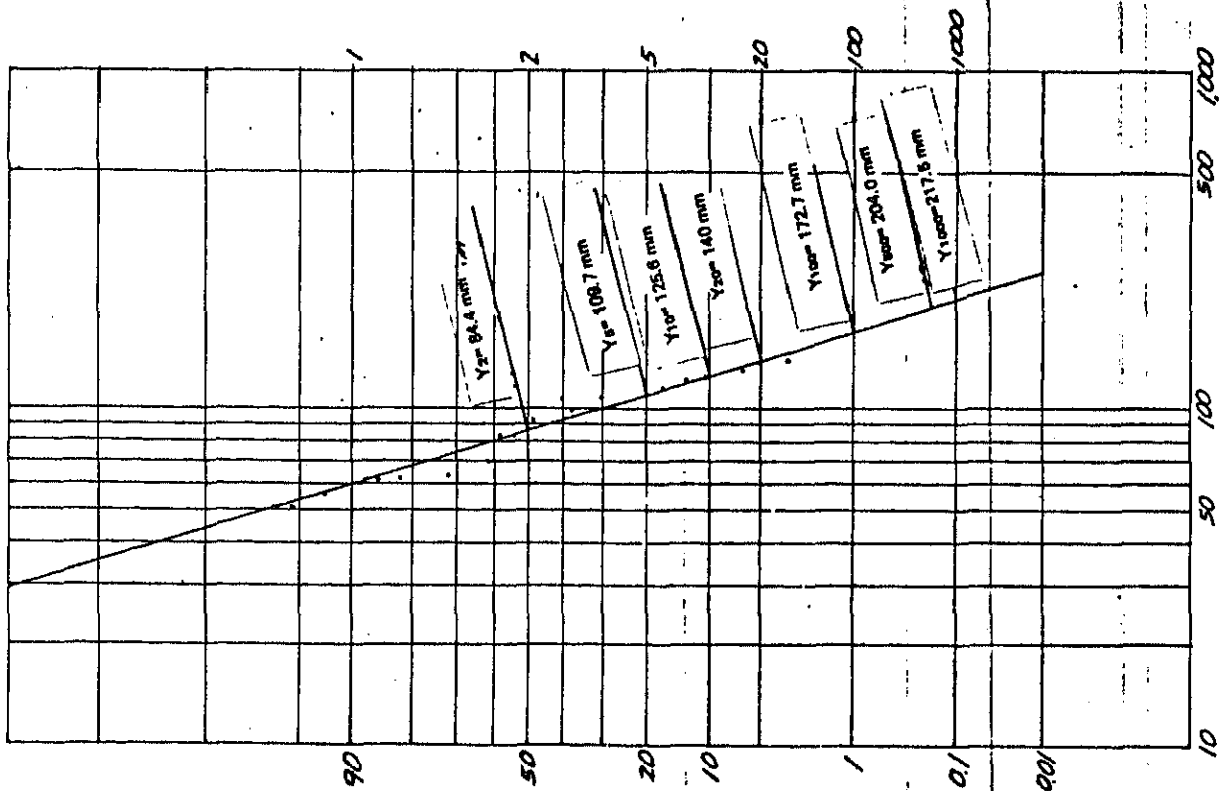


Fig. 3B-4 Frequency of daily Max. Rainfall



Probability Daily Rainfall at Prome

YEAR 1977

FIG. 3B-5 WATER LEVEL & RAINFALL DATA

STATION: PROME

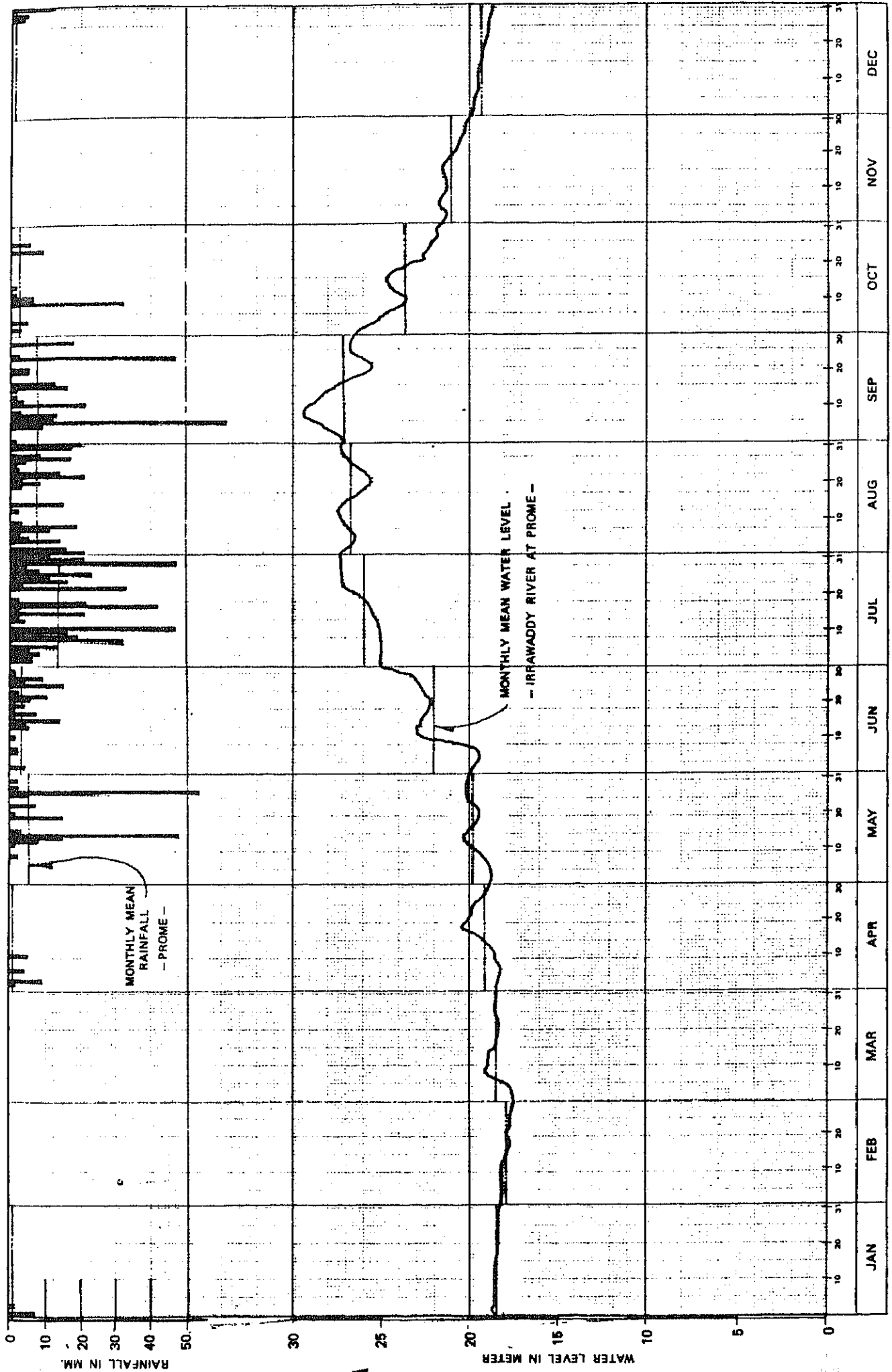


Table 3B-4 SUMMARY TABLE OF TEN-DAILY RAINFALL DATA

*STATION----- PAUKKAUNG

(UNIT = MILLIMETER)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
(F)	0.0	0.0	0.0	0.0	0.8	88.6	55.8	75.9	82.6	91.1	30.0	2.0	
(M)	0.0	0.0	0.0	0.0	13.7	41.4	91.2	71.6	54.8	8.7	1.0	0.0	
(L)	0.0	0.0	0.0	0.0	33.8	84.4	81.3	45.1	10.2	0.0	52.8	0.0	1016.8
(F)	0.0	0.0	0.0	0.0	0.0	32.1	67.8	65.0	*****	0.0	0.0	0.5	
(M)	0.0	0.0	0.0	0.0	55.6	56.1	123.2	46.4	*****	0.0	0.0	1.5	
(L)	0.0	0.0	0.0	2.5	38.5	13.1	113.7	124.9	*****	0.0	0.0	0.0	*****
(F)	0.0	0.0	0.0	0.0	57.2	131.4	63.7	71.4	30.6	66.7	0.0	0.0	
(M)	5.1	0.0	0.0	0.0	4.1	67.7	27.7	123.0	53.3	62.4	0.0	0.0	
(L)	0.0	0.0	0.0	2.5	5.6	60.1	73.6	116.2	18.3	105.1	0.0	0.0	1145.7
(F)	0.0	0.0	0.0	0.0	0.0	72.7	127.2	77.8	73.1	97.8	2.5	0.0	
(M)	0.0	0.0	0.0	0.5	33.8	63.8	71.6	211.6	38.6	31.9	0.0	0.0	
(L)	0.0	0.0	0.0	0.0	262.8	125.2	50.7	40.1	91.6	11.6	0.0	0.0	1484.9
(F)	0.0	0.0	0.0	0.0	32.0	133.0	58.1	136.9	*****	*****	0.0	0.0	
(M)	0.0	0.0	0.0	0.0	42.2	118.1	65.7	204.5	*****	*****	0.0	0.0	
(L)	0.0	0.0	0.0	0.0	71.2	33.2	67.8	108.5	*****	*****	0.0	0.0	*****
(F)	0.0	0.0	0.0	0.0	56.0	112.0	40.0	73.0	77.0	0.0	0.0	0.0	
(M)	0.0	0.0	0.0	0.0	0.0	38.0	101.0	24.0	102.0	0.0	0.0	0.0	
(L)	0.0	0.0	0.0	28.0	108.0	96.0	100.0	95.0	45.0	0.0	0.0	0.0	1095.0
(F)	0.0	0.0	0.0	0.0	0.0	44.0	42.0	68.0	42.0	51.0	25.0	0.0	
(M)	0.0	0.0	0.0	5.0	14.0	46.0	70.0	50.0	87.0	0.0	0.0	0.0	
(L)	0.0	0.0	0.0	0.0	48.0	30.0	113.0	41.0	39.0	17.0	87.0	0.0	919.0
(F)	0.0	0.0	0.0	0.0	59.0	84.0	30.0	62.0	52.0	20.0	31.0	0.0	
(M)	0.0	0.0	0.0	0.0	113.0	437.0	74.0	46.0	36.0	92.0	40.0	0.0	
(L)	0.0	0.0	10.0	0.0	46.0	172.0	84.0	100.0	68.0	12.0	17.0	0.0	1685.0
(F)	0.0	0.0	0.0	0.0	0.0	*****	*****	*****	*****	*****	0.0	0.0	
(M)	0.0	0.0	0.0	10.0	26.0	*****	*****	*****	*****	*****	0.0	0.0	
(L)	0.0	0.0	0.0	21.0	165.0	*****	*****	*****	*****	*****	0.0	0.0	*****

Fig. 3B-6 Correlation of Rainfall between
Prome and Paukkaung

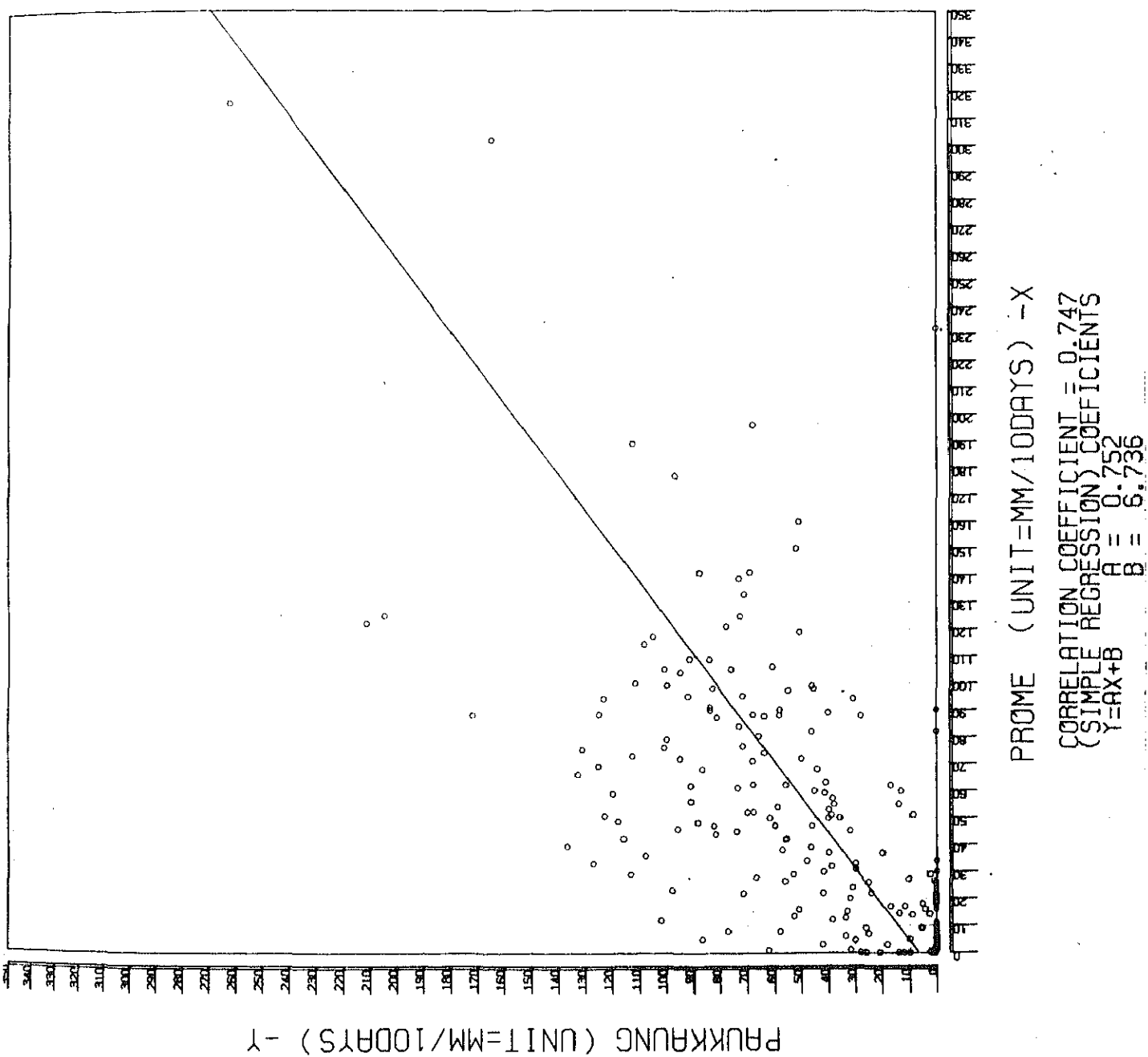


Fig 3B - 7 - Annual Rainfall in 27 years
(At Paukkaung Station)

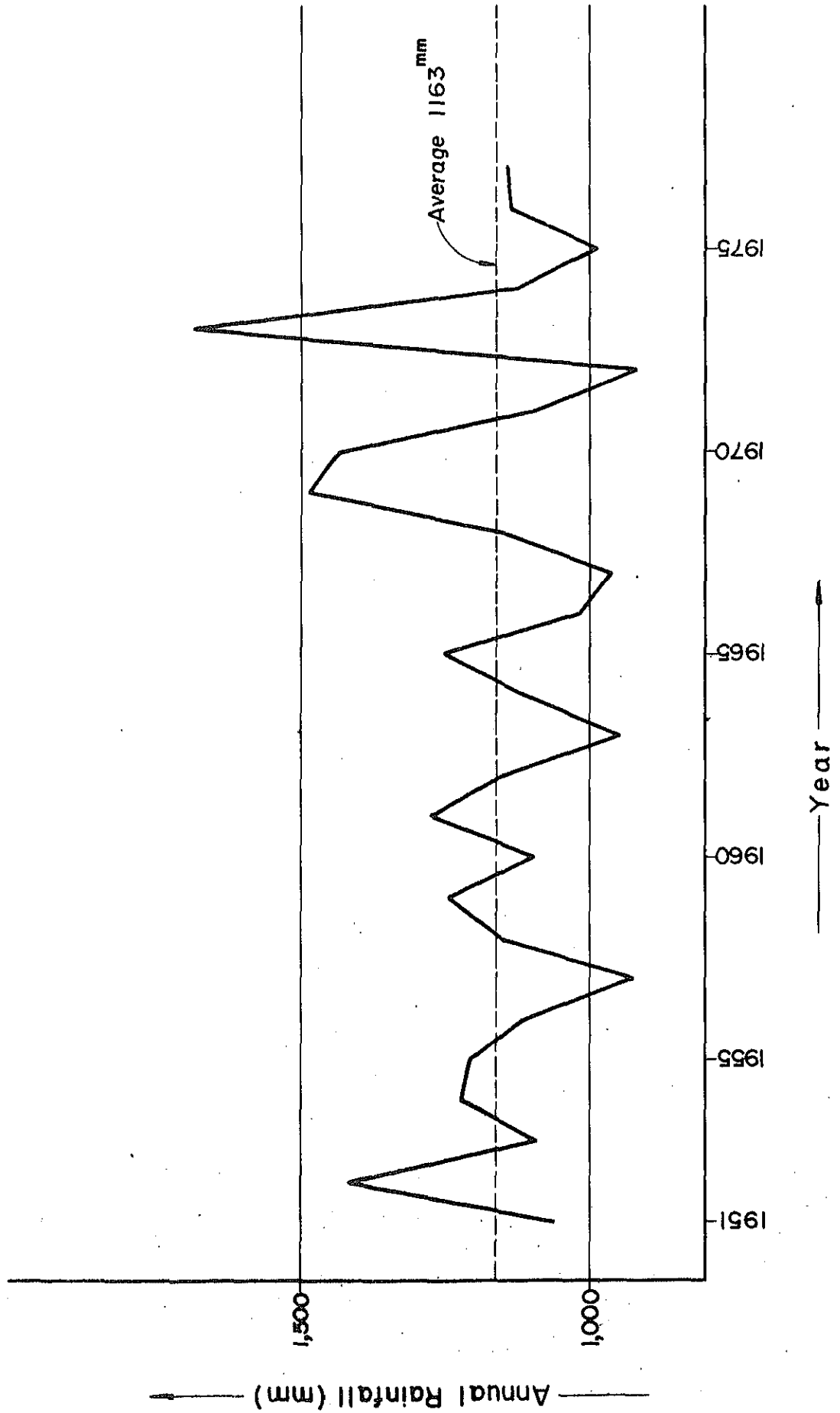


Table 3B-5 SUMMARY TABLE OF TEN-DAILY RAINFALL DATA

*STATION-----PAUKKAUNG		(UNIT = MILLIMETER)											
*YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1947	(F) 0.0 (M) 30.8 (L) 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 12.3 12.7	0.0 47.3 23.7	31.0 101.4 77.3	19.4 39.4 108.3	23.1 45.8 49.9	54.2 26.2 72.3	12.1 32.7 54.2	0.0 0.0 0.0	0.0 0.0 0.0	884.1
1948	(F) 0.0 (M) 0.0 (L) 0.0	0.0 0.0 0.0	0.0 0.0 10.7	7.1 8.1 17.4	24.0 40.7 41.7	35.5 66.3 159.6	37.2 144.2 49.1	30.7 70.9 86.1	118.3 52.1 43.3	114.1 0.0 48.5	0.0 7.3 16.5	0.0 0.0 0.0	1239.4
1949	(F) (M) (L)												
1950	(F) (M) (L)												
1951	(F) 0.0 (M) 0.0 (L) 42.1	0.0 0.0 0.0	0.0 0.0 0.0	7.7 8.8 11.5	0.0 15.2 16.7	37.3 140.4 49.8	14.4 19.0 94.1	53.5 23.7 33.6	187.0 8.5 79.3	81.6 36.1 53.1	7.7 0.0 0.0	22.2 11.3 0.0	1064.7
1952	(F) 0.0 (M) 0.0 (L) 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.0 8.1 12.7	14.6 21.5 71.4	83.1 136.7 86.2	76.3 63.3 150.8	39.8 58.5 91.8	36.5 62.5 92.9	38.4 23.6 185.7	30.2 30.0 0.0	0.0 0.0 0.0	1415.6
1953	(F) 0.0 (M) 0.0 (L) 8.2	0.0 0.0 0.0	0.0 0.0 0.0	0.0 11.5 11.7	133.9 34.6 8.5	7.0 45.2 58.3	117.0 13.9 108.0	75.0 85.7 47.6	78.2 29.7 80.5	53.9 13.1 20.7	11.1 17.6 18.5	0.0 0.0 0.0	1091.4
1954	(F) 0.0 (M) 0.0 (L) 0.0	0.0 0.0 0.0	0.0 0.0 7.5	0.0 11.3 0.0	21.4 27.1 104.2	72.1 74.8 57.0	61.4 86.4 26.0	81.8 35.8 36.2	52.0 144.1 85.4	114.5 14.7 98.2	11.5 0.0 0.0	0.0 0.0 0.0	1223.4

SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (2)

*STATION--PAUKKRAUNG

(UNIT = MILLIMETER)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1955 (F)	0.0	0.0	0.0	14.0	22.7	48.8	42.2	44.2	59.2	32.7	21.2	0.0	0.0
1955 (M)	0.0	0.0	0.0	0.0	118.2	95.7	70.0	52.9	40.2	52.0	38.6	0.0	0.0
1955 (L)	0.0	0.0	0.0	0.0	87.3	109.7	97.9	47.0	54.5	59.1	0.0	0.0	1208.1
1956 (F)	0.0	0.0	0.0	0.0	37.6	77.4	37.1	21.5	23.4	35.0	0.0	0.0	0.0
1956 (M)	0.0	7.1	0.0	0.0	152.4	50.9	62.4	53.9	82.7	86.8	0.0	0.0	0.0
1956 (L)	0.0	0.0	0.0	15.6	60.7	45.4	136.6	55.7	48.8	21.2	0.0	0.0	1113.2
1957 (F)	0.0	0.0	0.0	10.3	18.9	161.5	41.2	75.3	48.9	56.3	0.0	0.0	0.0
1957 (M)	0.0	0.0	0.0	0.0	10.4	12.3	35.2	86.2	19.5	12.3	0.0	0.0	0.0
1957 (L)	0.0	0.0	10.9	0.0	10.6	44.8	81.8	56.2	119.1	0.0	0.0	0.0	922.7
1958 (F)	0.0	0.0	0.0	7.9	35.5	38.6	51.5	39.1	37.3	15.3	27.0	0.0	0.0
1958 (M)	0.0	0.0	0.0	0.0	38.6	122.5	60.9	89.2	73.3	86.6	0.0	0.0	0.0
1958 (L)	0.0	0.0	0.0	10.2	8.8	58.7	150.6	51.8	82.1	56.1	0.0	0.0	1152.6
1959 (F)	0.0	0.0	0.0	0.0	11.1	115.5	72.1	75.7	53.2	58.3	42.4	48.8	0.0
1959 (M)	0.0	0.0	0.0	9.6	0.0	9.1	47.5	41.6	45.4	51.6	0.0	0.0	0.0
1959 (L)	19.3	7.9	0.0	37.9	56.2	40.2	99.7	97.9	130.9	59.4	0.0	0.0	1243.5
1960 (F)	0.0	0.0	0.0	0.0	25.8	22.6	89.8	88.7	35.8	58.5	17.4	16.3	0.0
1960 (M)	0.0	0.0	0.0	0.0	14.6	180.9	19.7	84.1	74.4	56.6	0.0	0.0	0.0
1960 (L)	0.0	0.0	0.0	7.7	83.9	23.0	25.4	54.9	80.8	8.8	7.3	0.0	1099.0
1961 (F)	0.0	0.0	0.0	11.9	31.8	77.5	77.3	55.0	57.9	22.3	16.7	0.0	0.0
1961 (M)	0.0	0.0	0.0	17.3	0.0	132.7	149.9	44.9	85.9	70.9	0.0	0.0	0.0
1961 (L)	0.0	0.0	0.0	8.8	68.5	70.7	41.8	92.3	54.9	44.8	9.8	10.3	1275.0
1962 (F)	0.0	0.0	0.0	0.0	10.6	75.5	30.3	32.0	47.4	32.3	8.6	0.0	0.0
1962 (M)	0.0	0.0	0.0	0.0	42.1	196.9	107.3	93.6	103.6	49.9	0.0	0.0	0.0
1962 (L)	0.0	0.0	0.0	11.4	40.8	45.3	88.6	10.9	48.5	73.6	0.0	0.0	1149.5
1963 (F)	0.0	0.0	0.0	0.0	18.2	48.6	57.7	153.5	71.4	37.0	0.0	14.0	0.0
1963 (M)	0.0	0.0	0.0	9.1	23.0	48.8	36.6	39.4	56.8	12.2	0.0	7.8	0.0
1963 (L)	0.0	0.0	0.0	0.0	33.5	39.9	96.7	41.2	29.4	63.4	0.0	0.0	948.3

SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (3)

*STATION-----PAUKKAUNG

(UNIT = MILLIMETER)

*YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1964 (F)	0.0	0.0	0.0	0.0	37.6	77.4	37.1	21.5	23.4	35.0	0.0	0.0	0.0
1964 (M)	0.0	7.1	0.0	0.0	152.4	50.9	68.1	53.9	82.7	86.8	0.0	0.0	0.0
1964 (L)	0.0	0.0	0.0	16.6	60.7	44.6	136.6	55.7	48.8	21.2	0.0	0.0	1118.1
1965 (F)	0.0	26.0	0.0	0.0	0.0	28.4	118.5	61.4	77.6	81.2	32.5	0.0	0.0
1965 (M)	0.0	0.0	0.0	0.0	18.2	106.4	38.4	28.1	34.4	64.2	0.0	34.0	0.0
1965 (L)	0.0	0.0	0.0	0.0	34.7	77.6	100.5	63.5	92.1	132.6	0.0	0.0	1250.3
1966 (F)	0.0	0.0	0.0	0.0	0.8	88.6	55.8	75.9	82.6	91.1	30.0	2.0	0.0
1966 (M)	0.0	0.0	0.0	0.0	13.7	41.4	91.2	71.6	54.8	8.7	1.0	0.0	0.0
1966 (L)	0.0	0.0	0.0	0.0	33.8	84.4	81.3	45.1	10.2	0.0	52.8	0.0	1016.8
1967 (F)	0.0	0.0	0.0	0.0	0.0	32.1	67.8	69.0	107.5	0.0	0.0	0.5	0.0
1967 (M)	0.0	0.0	0.0	0.0	55.6	56.1	123.2	46.4	55.2	0.0	0.0	0.0	0.0
1967 (L)	0.0	0.0	0.0	2.5	38.5	13.1	113.7	124.9	53.2	0.0	0.0	0.0	960.8
1968 (F)	0.0	0.0	0.0	0.0	57.2	131.4	63.7	71.4	30.6	66.7	0.0	0.0	0.0
1968 (M)	5.1	0.0	0.0	0.0	4.1	67.7	27.7	123.0	53.3	52.4	0.0	0.0	0.0
1968 (L)	0.0	0.0	0.0	2.5	5.6	60.1	73.6	116.2	18.3	105.1	0.0	0.0	1145.7
1969 (F)	0.0	0.0	0.0	0.0	0.0	72.7	127.2	77.8	73.1	97.8	2.5	0.0	0.0
1969 (M)	0.0	0.0	0.0	0.5	33.8	63.8	71.6	211.6	38.6	31.9	0.0	0.0	0.0
1969 (L)	0.0	0.0	0.0	0.0	262.8	125.2	50.7	40.1	91.6	11.6	0.0	0.0	1484.9
1970 (F)	0.0	0.0	0.0	0.0	32.0	133.0	58.1	136.9	65.4	24.0	0.0	0.0	0.0
1970 (M)	0.0	0.0	0.0	0.0	42.2	118.1	55.7	204.9	80.9	109.0	0.0	0.0	0.0
1970 (L)	0.0	0.0	0.0	0.0	71.2	33.2	67.8	108.5	30.2	52.5	0.0	0.0	1433.6
1971 (F)	0.0	0.0	0.0	0.0	56.0	112.0	40.0	73.0	77.0	0.0	0.0	0.0	0.0
1971 (M)	0.0	0.0	0.0	0.0	0.0	38.0	101.0	24.0	102.0	0.0	0.0	0.0	0.0
1971 (L)	0.0	0.0	0.0	28.0	108.0	96.0	100.0	95.0	45.0	0.0	0.0	0.0	1095.0
1972 (F)	0.0	0.0	0.0	0.0	0.0	44.0	42.0	68.0	42.0	51.0	25.0	0.0	0.0
1972 (M)	0.0	0.0	0.0	5.0	14.0	46.0	70.0	50.0	67.0	0.0	0.0	0.0	0.0
1972 (L)	0.0	0.0	0.0	0.0	48.0	30.0	113.0	41.0	39.0	17.0	87.0	0.0	919.0

SUMMARY TABLE OF TEN-DAILY RAINFALL DATA (4)

*STATION-----PAUKKAUNG

(UNIT = MILLIMETER)

*YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1973 (F)	0.0	0.0	0.0	0.0	59.0	84.0	30.0	52.0	52.0	20.0	31.0	0.0	0.0
(M)	0.0	0.0	0.0	0.0	113.0	437.0	74.0	46.0	36.0	92.0	40.0	0.0	0.0
(L)	0.0	0.0	10.0	0.0	46.0	172.0	84.0	100.0	68.0	12.0	17.0	0.0	1685.0
1974 (F)	0.0	0.0	0.0	0.0	0.0	69.1	53.3	57.1	63.1	0.0	0.0	0.0	0.0
(M)	0.0	0.0	0.0	10.0	26.0	73.6	50.3	161.6	33.0	0.0	0.0	0.0	0.0
(L)	0.0	0.0	0.0	21.0	165.0	93.9	84.2	99.2	64.6	0.0	0.0	0.0	1125.0
1975 (F)	0.0	0.0	0.0	0.0	112.0	108.2	59.4	39.0	36.1	0.0	0.0	0.0	0.0
(M)	0.0	0.0	0.0	0.0	19.5	52.6	139.0	14.0	39.1	0.0	0.0	0.0	0.0
(L)	0.0	0.0	0.0	0.0	116.5	110.5	36.1	51.0	51.8	0.0	0.0	0.0	984.8
1976 (F)	0.0	8.2	0.0	7.5	96.2	51.8	80.4	30.0	21.0	9.7	8.2	9.7	0.0
(M)	0.0	0.0	0.0	11.2	8.2	122.5	55.4	42.1	43.6	74.4	0.0	0.0	0.0
(L)	0.0	0.0	0.0	12.0	96.2	22.5	110.5	48.8	111.2	36.1	9.0	0.0	1156.4
1977 (F)	0.0	0.0	0.0	0.0	8.2	26.0	101.0	58.0	83.0	82.0	0.0	0.0	0.0
(M)	0.0	0.0	0.0	0.0	75.1	40.0	88.0	25.0	120.0	58.0	0.0	0.0	0.0
(L)	0.0	0.0	0.0	0.0	57.1	60.0	97.0	61.0	95.0	9.0	0.0	0.0	1143.4

3B-4. Run-off Analysis by Tank Model Method

It is clearly noted that the runoff is caused from rainfalls, and the run-off curve for a given rainfall distribution can be developed when the relations between rainfall and runoff caused therefore can be expressed in function.

The tank model method used in the runoff analysis is illustrated in Appendix 3B-4, Fig. 3B-8. The basic concept of the tank model analysis is this; the run-off and percolation from outlets of the tanks shall be expressed in an exponential function. Several tanks with outlets on side and bottom are assumed to be arranged in series and the rainfall would pour into the tank at the top and the evapo-transpiration would be discharged from the tank at the top and the second tank respectively. Some water in each tank would be discharged outside from the side outlet of the tank and the other would be transferred to the following tank through the bottom outlet (percolation outlet). In this study, the total amount of water discharged from the side outlets would be the estimate of the stream flow of the river.

When the rainfall in X mm would pour into the first tank, the water depth would be X mm in that tank per unit area. When the stored water is taken by X , the amount of $\alpha \cdot X$ would be discharged as run-off and $\beta \cdot X$ as percolation per unit hour, respectively; in other expression, $(\alpha + \beta) \cdot X$ are discharged and the remainder in the tank is $\{1 - (\alpha + \beta)\} \cdot X$. Consequently, the reduction rate of water is $V = 1 - (\alpha + \beta)$ and thereby the ratio run-off and percolation is obtained as $\alpha = \beta$.

Application of this tank model will enable to express the run-off by the form of the exponential function of the reduction rate as $1 - (\alpha + \beta)$.

Various scale models were designed and analysis for them were made repeatedly in order to determine the coefficient of the suitable tank model to the project study. The series of studies

together with verification of the observed runoff records of the South Nawin Chaung for a period between 1973 and 1977 have resulted in the definite scale of the tank model for the project study which is detailed as below.

Seventy percent of evapotranspiration was allocated to the first tank and remaining 30 percent to the second tank.

The initial water depth in the respective tank were taken as follows: the first and the second tanks are 0 mm, the third tank is 30 mm and the fourth tank is 580 mm as illustrated in the Fig. 3B-9. The results of the study on this matter are shown in the Table 3B-6.

Fig 3B-8 Illustration on Run-off Analysis by Tank Model

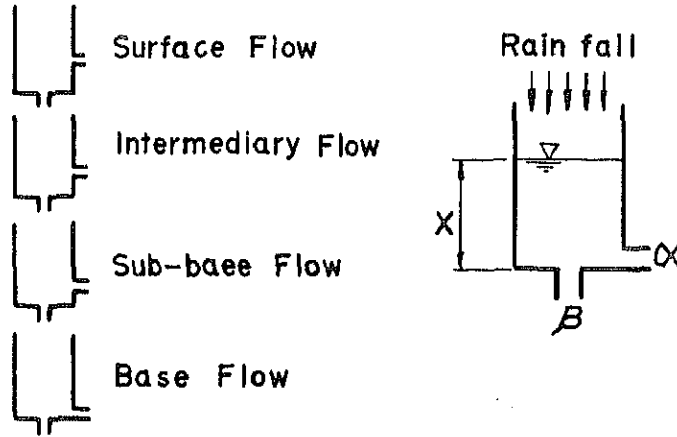
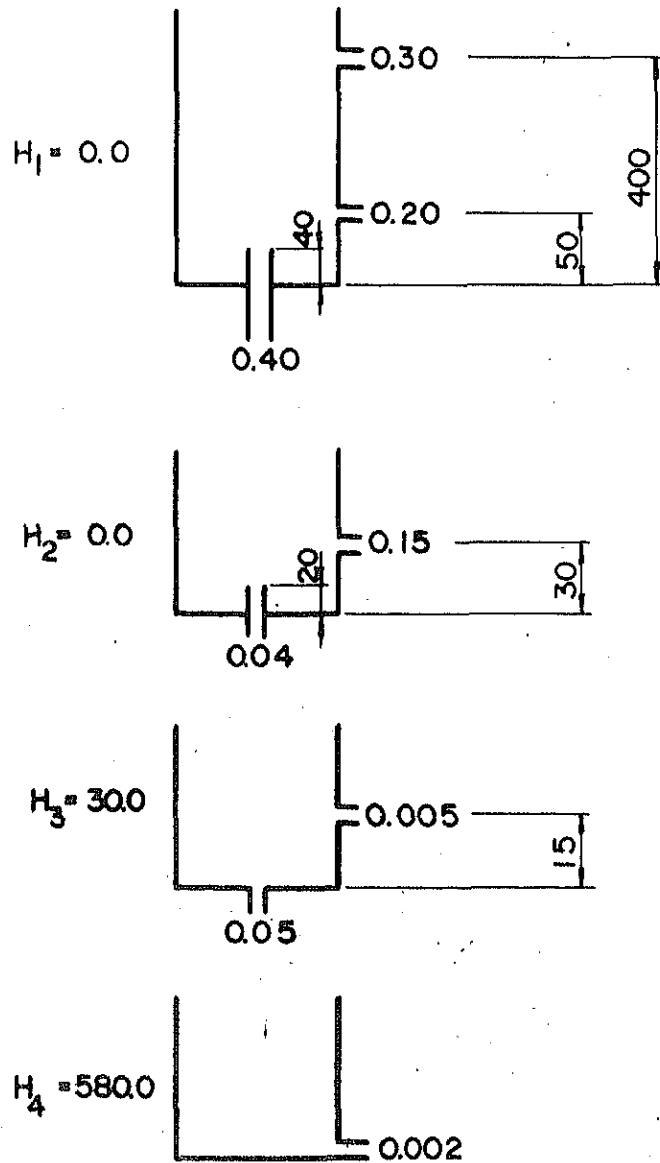


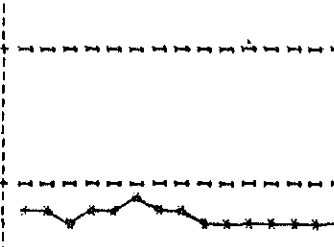
Fig 3B-9 Coefficient of Tank Model for South Nowin Chang



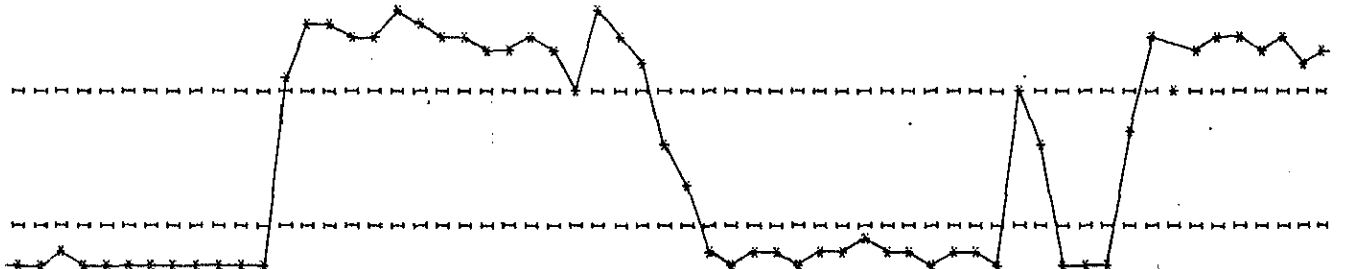
RUNOFF SYNTHESIS BY TANK MODEL METHOD

Table 3B-b

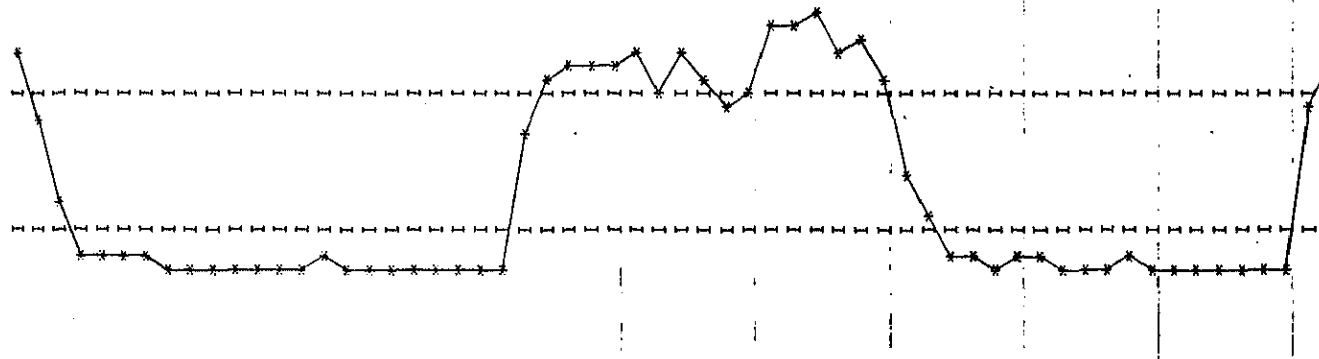
+PROJECT-----SOUTH MAJIN		+CATCHMENT AREA-----640.0(SQ. KM)		OBSERVED AND ESTIMATED RUNOFF		WATER DEPTH OF TANKS						
YEAR	MON T	RAIN (MM)	PERC EVAP (MM)	ESTIMATED RUNOFF (MM)	EST (CUM/S)	OBS (+)	EST (*)	1000	1-ST	2-ND	3-RD	4-TH
		(MM)	(MM)	(MM)	(CUM/S)				IN (MM)	IN (MM)		
1967	JAN*	0.0	0.0	0.8	0.59	I	I	I	0.0	0.0	0.0	580.
	*M	30.8	21.4	0.8	0.59	I	I	I	9.0	0.0	0.0	580.
	*L	0.0	9.4	0.8	0.53	I	I	I	0.0	0.0	0.0	581.
	FEB*	0.0	0.0	0.8	0.58	I	I	I	0.0	0.0	0.0	581.
	*M	0.0	0.0	0.8	0.58	I	I	I	0.0	0.0	0.0	581.
	*L	0.0	0.0	0.8	0.72	I	I	I	0.0	0.0	0.0	581.
	MAR*	0.0	0.0	0.8	0.57	I	I	I	0.0	0.0	0.0	581.
	*M	0.0	0.0	0.8	0.57	I	I	I	0.0	0.0	0.0	581.
	*L	0.0	0.0	0.8	0.51	I	I	I	0.0	0.0	0.0	581.
	APR*	0.0	0.0	0.8	0.56	I	I	I	0.0	0.0	0.0	581.
	*M	12.3	12.3	0.8	0.56	I	I	I	0.0	0.0	0.0	581.
	*L	12.7	12.7	0.8	0.56	I	I	I	0.0	0.0	0.0	581.
	MAY*	0.0	0.0	0.7	0.55	I	I	I	0.0	0.0	0.0	581.
	*M	47.3	37.3	0.7	0.55	I	I	I	10.0	0.0	0.0	580.
	*L	23.7	29.7	0.7	0.50	I	I	I	4.0	0.0	0.0	580.
	JUN*	31.0	25.3	0.7	0.55	I	I	I	9.0	0.0	0.0	580.
	*M	101.4	34.2	11.5	8.50	I	I	I	56.0	0.0	0.0	580.
	*L	77.3	36.4	21.0	15.59	I	I	I	82.0	4.0	0.0	580.
	JUL*	19.4	34.5	8.9	6.57	I	I	I	52.0	1.0	0.0	580.
	*M	39.4	33.0	8.7	6.48	I	I	I	51.0	0.0	0.0	579.
	*L	108.3	35.9	28.9	19.45	I	I	I	95.0	9.0	0.0	579.
	AUG*	23.1	30.0	14.8	10.99	I	I	I	72.0	11.0	0.0	579.
	*M	45.8	31.4	14.3	10.61	I	I	I	71.0	12.0	0.0	579.
	*L	49.9	32.8	15.0	10.11	I	I	I	72.0	13.0	0.0	579.
	SEP*	24.2	34.1	16.4	12.12	I	I	I	74.0	15.0	0.0	578.
	*M	56.2	34.6	18.5	6.33	I	I	I	51.0	11.0	0.0	578.
	*L	72.3	34.2	18.5	13.73	I	I	I	78.0	14.0	0.0	578.
	OCT*	12.1	35.9	5.1	3.79	I	I	I	55.0	8.0	0.0	578.
	*M	32.7	37.0	4.4	3.23	I	I	I	54.0	2.0	0.0	577.
	*L	64.2	35.3	13.9	9.28	I	I	I	70.0	2.0	0.0	577.
	NOV*	0.0	24.8	0.7	0.53	I	I	I	47.0	0.0	0.0	577.
	*M	0.0	21.9	0.7	0.53	I	I	I	25.0	0.0	0.0	577.
	*L	0.0	21.5	0.7	0.53	I	I	I	3.0	0.0	0.0	576.
	DEC*	0.0	3.0	0.7	0.53	I	I	I	0.0	0.0	0.0	576.
	*M	0.0	0.0	0.7	0.52	I	I	I	0.0	0.0	0.0	576.
	*L	0.0	0.0	0.7	0.47	I	I	I	0.0	0.0	0.0	576.
	1968	JAN*	0.0	0.0	0.52	I	I	I	0.0	0.0	0.0	575.
	*M	0.0	0.0	0.7	0.52	I	I	I	0.0	0.0	0.0	575.
	*L	0.0	0.0	0.7	0.47	I	I	I	0.0	0.0	0.0	575.
	FEB*	0.0	0.0	0.7	0.51	I	I	I	0.0	0.0	0.0	574.
	*M	0.0	0.0	0.7	0.51	I	I	I	0.0	0.0	0.0	574.
	*L	0.0	0.0	0.7	0.57	I	I	I	0.0	0.0	0.0	573.
	MAR*	0.0	0.0	0.7	0.57	I	I	I	0.0	0.0	0.0	573.
	*M	0.0	0.0	0.7	0.51	I	I	I	0.0	0.0	0.0	572.
	*L	10.7	10.7	0.7	0.46	I	I	I	0.0	0.0	0.0	572.
	APR*	7.1	7.1	0.7	0.51	I	I	I	0.0	0.0	0.0	572.
	*M	8.1	8.1	0.7	0.51	I	I	I	0.0	0.0	0.0	571.
	*L	17.4	17.4	0.7	0.51	I	I	I	0.0	0.0	0.0	571.
	MAY*	24.0	24.0	0.7	0.51	I	I	I	0.0	0.0	0.0	570.
	*M	40.7	37.3	0.7	0.51	I	I	I	0.0	0.0	0.0	570.
	*L	41.7	29.7	0.7	0.46	I	I	I	15.0	0.0	0.0	570.



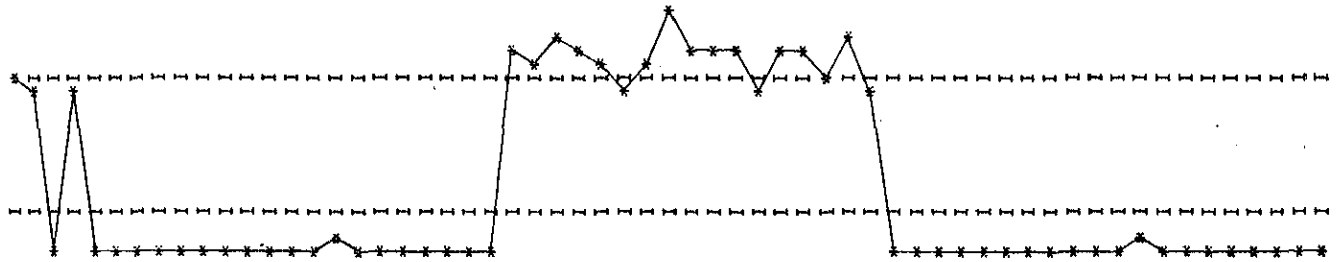
Month	Day	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Value 8	Value 9	Value 10	Value 11	Value 12	Value 13	Value 14	Value 15	Value 16	Value 17	
FEB	F	0.0	0.0	0.0	0.7	0.53	0.00	0.00	0.00	I	I	I	I	I	I	I	I	17.	564.
FEB	M	0.0	0.0	0.0	0.7	0.53	0.00	0.00	0.00	I	I	I	I	I	I	I	I	16.	563.
MAR	F	0.0	0.0	0.0	0.7	0.58	0.00	0.00	0.00	I	I	I	I	I	I	I	I	18.	565.
MAR	M	0.0	0.0	0.0	0.7	0.52	0.00	0.00	0.00	I	I	I	I	I	I	I	I	15.	563.
APR	F	0.0	0.0	0.0	0.7	0.52	0.00	0.00	0.00	I	I	I	I	I	I	I	I	15.	563.
APR	M	0.0	0.0	0.0	0.7	0.47	0.00	0.00	0.00	I	I	I	I	I	I	I	I	14.	562.
APR	L	8.1	8.1	0.0	0.7	0.52	0.00	0.00	0.00	I	I	I	I	I	I	I	I	14.	562.
MAY	F	12.7	12.7	0.7	0.7	0.51	0.00	0.00	0.00	I	I	I	I	I	I	I	I	13.	562.
MAY	M	14.6	14.6	0.7	0.7	0.51	0.00	0.00	0.00	I	I	I	I	I	I	I	I	13.	562.
MAY	L	21.5	21.5	0.7	0.7	0.51	0.00	0.00	0.00	I	I	I	I	I	I	I	I	13.	561.
JUN	F	71.4	30.1	0.7	0.7	0.46	0.00	0.00	0.00	I	I	I	I	I	I	I	I	12.	561.
JUN	M	83.1	36.4	15.4	15.4	11.38	0.00	0.00	0.00	I	I	I	I	I	I	I	I	11.	560.
JUN	L	130.0	35.8	38.9	38.9	28.82	0.00	0.00	0.00	I	I	I	I	I	I	I	I	12.	560.
JUL	F	86.2	36.4	38.5	38.5	28.54	0.00	0.00	0.00	I	I	I	I	I	I	I	I	13.	560.
JUL	M	76.3	34.5	36.9	36.9	27.37	0.00	0.00	0.00	I	I	I	I	I	I	I	I	14.	560.
JUL	L	65.3	34.6	32.9	32.9	24.35	0.00	0.00	0.00	I	I	I	I	I	I	I	I	15.	559.
AUG	F	150.8	36.9	58.4	58.4	39.36	0.00	0.00	0.00	I	I	I	I	I	I	I	I	18.	559.
AUG	M	39.8	30.0	38.5	38.5	28.55	0.00	0.00	0.00	I	I	I	I	I	I	I	I	20.	559.
AUG	L	58.3	31.4	33.5	33.5	24.85	0.00	0.00	0.00	I	I	I	I	I	I	I	I	22.	559.
SEP	F	91.8	32.8	41.4	41.4	27.87	0.00	0.00	0.00	I	I	I	I	I	I	I	I	24.	559.
SEP	M	36.5	34.1	27.2	27.2	20.18	0.00	0.00	0.00	I	I	I	I	I	I	I	I	26.	560.
SEP	L	62.5	34.6	27.7	27.7	20.51	0.00	0.00	0.00	I	I	I	I	I	I	I	I	28.	560.
OCT	F	92.9	34.2	37.9	37.9	28.08	0.00	0.00	0.00	I	I	I	I	I	I	I	I	30.	560.
OCT	M	38.4	35.9	25.2	25.2	18.67	0.00	0.00	0.00	I	I	I	I	I	I	I	I	31.	560.
OCT	L	23.6	37.0	12.8	12.8	9.48	0.00	0.00	0.00	I	I	I	I	I	I	I	I	32.	561.
NOV	F	185.7	35.3	59.5	59.5	40.05	0.00	0.00	0.00	I	I	I	I	I	I	I	I	34.	561.
NOV	M	30.2	30.9	35.8	35.8	26.53	0.00	0.00	0.00	I	I	I	I	I	I	I	I	35.	561.
NOV	L	30.0	31.3	22.7	22.7	16.81	0.00	0.00	0.00	I	I	I	I	I	I	I	I	37.	562.
DEC	F	0.0	30.8	5.4	5.4	4.03	0.00	0.00	0.00	I	I	I	I	I	I	I	I	38.	562.
DEC	M	0.0	28.8	2.5	2.5	1.83	0.00	0.00	0.00	I	I	I	I	I	I	I	I	33.	563.
DEC	L	0.0	29.3	0.8	0.8	0.61	0.00	0.00	0.00	I	I	I	I	I	I	I	I	23.	563.
JAN	F	0.0	18.5	0.8	0.8	0.55	0.00	0.00	0.00	I	I	I	I	I	I	I	I	13.	564.
JAN	M	0.0	8.6	0.8	0.8	0.60	0.00	0.00	0.00	I	I	I	I	I	I	I	I	4.	564.
JAN	L	0.0	4.0	0.8	0.8	0.60	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	564.
FEB	F	8.2	8.2	0.8	0.8	0.54	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	565.
FEB	M	0.0	0.0	0.8	0.8	0.59	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	565.
FEB	L	0.0	0.0	0.8	0.8	0.58	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	565.
MAR	F	0.0	0.0	0.8	0.8	0.73	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	566.
MAR	M	0.0	0.0	0.8	0.8	0.58	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	566.
MAR	L	0.0	0.0	0.8	0.8	0.57	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	566.
APR	F	0.0	0.0	0.8	0.8	0.52	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	566.
APR	M	11.5	11.5	0.8	0.8	0.56	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
APR	L	11.7	11.7	0.8	0.8	0.56	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
MAY	F	133.9	51.9	13.5	13.5	9.99	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
MAY	M	34.6	42.6	5.7	5.7	4.23	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
MAY	L	8.5	29.7	0.7	0.7	0.50	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
JUN	F	7.0	25.5	0.7	0.7	0.55	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
JUN	M	45.2	25.1	0.7	0.7	0.55	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
JUN	L	58.3	31.4	6.6	6.6	4.87	0.00	0.00	0.00	I	I	I	I	I	I	I	I	0.	567.
JUL	F	117.0	34.5	30.9	30.9	22.90	0.00	0.00	0.00	I	I	I	I	I	I	I	I	11.	567.
JUL	M	13.9	34.6	12.1	12.1	8.98	0.00	0.00	0.00	I	I	I	I	I	I	I	I	10.	566.
JUL	L	108.0	36.9	30.5	30.5	20.53	0.00	0.00	0.00	I	I	I	I	I	I	I	I	20.	566.
AUG	F	75.0	30.0	32.5	32.5	24.04	0.00	0.00	0.00	I	I	I	I	I	I	I	I	20.	566.
AUG	M	85.7	31.4	37.6	37.6	27.87	0.00	0.00	0.00	I	I	I	I	I	I	I	I	22.	566.
AUG	L	47.6	32.8	28.0	28.0	18.85	0.00	0.00	0.00	I	I	I	I	I	I	I	I	23.	566.
SEP	F	78.2	34.1	32.6	32.6	24.11	0.00	0.00	0.00	I	I	I	I	I	I	I	I	24.	566.
SEP	M	29.7	34.6	19.1	19.1	14.15	0.00	0.00	0.00	I	I	I	I	I	I	I	I	24.	567.
SEP	L	80.5	34.2	28.4	28.4	21.03	0.00	0.00	0.00	I	I	I	I	I	I	I	I	25.	567.



Month	Day	55.9	35.9	25.0	18.51	0.00	I	82.4	44.4	27.0	567.0
1954	OCT	*M	13.1	37.0	8.7	6.41	I	58.0	35.0	28.0	567.0
	NOV	*L	20.7	35.3	2.2	1.50	I	50.0	26.0	28.0	567.0
		*M	11.1	30.9	0.8	0.57	I	39.0	16.0	28.0	567.0
	DEC	*M	17.5	31.3	0.8	0.57	I	35.0	6.0	27.0	568.0
		*L	18.5	27.8	0.8	0.57	I	32.0	0.0	26.0	568.0
	JAN	*M	0.0	11.8	0.8	0.56	I	12.0	0.0	24.0	568.0
		*L	0.0	0.0	0.8	0.51	I	0.0	0.0	24.0	568.0
	FEB	*M	0.0	0.0	0.8	0.56	I	0.0	0.0	23.0	568.0
		*L	0.0	0.0	0.8	0.55	I	0.0	0.0	22.0	568.0
	MAR	*M	0.0	0.0	0.7	0.55	I	0.0	0.0	21.0	568.0
		*L	0.0	0.0	0.7	0.55	I	0.0	0.0	21.0	568.0
	APR	*M	0.0	0.0	0.7	0.54	I	0.0	0.0	20.0	568.0
*L		0.0	0.0	0.7	0.54	I	0.0	0.0	20.0	568.0	
MAY	*M	7.5	7.5	0.7	0.68	I	0.0	0.0	19.0	568.0	
	*L	0.0	0.0	0.7	0.54	I	0.0	0.0	18.0	567.0	
JUN	*M	0.0	0.0	0.7	0.49	I	0.0	0.0	18.0	567.0	
	*L	0.0	0.0	0.7	0.53	I	0.0	0.0	17.0	567.0	
JUL	*M	11.3	11.3	0.7	0.53	I	0.0	0.0	16.0	567.0	
	*L	0.0	0.0	0.7	0.53	I	0.0	0.0	16.0	567.0	
AUG	*M	21.4	21.4	0.7	0.53	I	0.0	0.0	15.0	567.0	
	*L	27.1	27.1	0.7	0.52	I	0.0	0.0	15.0	566.0	
SEP	*M	104.2	36.6	8.0	5.41	I	60.0	0.0	14.0	566.0	
	*L	72.1	36.4	17.8	13.15	I	76.0	2.0	14.0	566.0	
OCT	*M	74.8	35.8	23.6	17.44	I	86.0	8.0	14.0	566.0	
	*L	57.0	36.4	21.0	15.54	I	82.0	13.0	14.0	566.0	
NOV	*M	61.4	34.5	21.4	15.87	I	83.0	17.0	14.0	565.0	
	*L	86.4	34.6	29.5	21.89	I	95.0	26.0	15.0	565.0	
DEC	*M	26.0	36.9	14.6	9.81	I	71.0	25.0	15.0	565.0	
	*L	81.8	30.0	26.6	19.70	I	89.0	32.0	16.0	565.0	
JAN	*M	35.8	31.4	18.0	13.30	I	74.0	32.0	17.0	564.0	
	*L	36.2	32.8	13.0	8.73	I	67.0	29.0	18.0	564.0	
FEB	*M	52.0	34.1	15.0	11.07	I	70.0	28.0	18.0	564.0	
	*L	144.1	34.6	46.2	34.26	I	118.0	42.0	20.0	564.0	
MARCH	*M	85.4	34.2	44.9	33.25	I	113.0	52.0	21.0	564.0	
	*L	114.5	35.9	53.8	39.83	I	124.0	64.0	23.0	564.0	
APRIL	*M	14.7	37.0	26.0	19.23	I	79.0	58.0	25.0	564.0	
	*L	98.2	35.3	38.4	25.88	I	99.0	61.0	27.0	564.0	
MAY	*M	11.5	30.9	18.0	13.34	I	68.0	53.0	29.0	565.0	
	*L	0.0	31.3	3.8	2.81	I	45.0	40.0	29.0	565.0	
JUNE	*M	0.0	30.8	1.7	1.25	I	23.0	29.0	30.0	565.0	
	*L	0.0	28.8	0.8	0.58	I	3.0	19.0	29.0	565.0	
JULY	*M	0.0	11.7	0.8	0.58	I	0.0	10.0	29.0	566.0	
	*L	0.0	9.8	0.8	0.52	I	0.0	0.0	28.0	566.0	
AUGUST	*M	0.0	0.4	0.8	0.57	I	0.0	0.0	27.0	566.0	
	*L	0.0	0.0	0.8	0.57	I	0.0	0.0	26.0	566.0	
SEPTEMBER	*M	0.0	0.0	0.8	0.51	I	0.0	0.0	25.0	566.0	
	*L	0.0	0.0	0.8	0.56	I	0.0	0.0	24.0	566.0	
OCTOBER	*M	0.0	0.0	0.8	0.56	I	0.0	0.0	24.0	566.0	
	*L	0.0	0.0	0.8	0.56	I	0.0	0.0	24.0	566.0	
NOVEMBER	*M	0.0	0.0	0.7	0.69	I	0.0	0.0	23.0	566.0	
	*L	0.0	0.0	0.7	0.55	I	0.0	0.0	22.0	566.0	
DECEMBER	*M	0.0	0.0	0.7	0.55	I	0.0	0.0	21.0	566.0	
	*L	0.0	0.0	0.7	0.50	I	0.0	0.0	21.0	566.0	
1955	*M	14.0	14.0	0.7	0.54	I	0.0	0.0	20.0	566.0	
	*L	0.0	0.0	0.7	0.54	I	0.0	0.0	19.0	566.0	
1956	*M	0.0	0.0	0.7	0.54	I	0.0	0.0	19.0	566.0	
	*L	0.0	0.0	0.7	0.54	I	0.0	0.0	18.0	566.0	
1957	*M	22.7	22.7	0.7	0.54	I	0.0	0.0	18.0	566.0	
	*L	118.2	45.5	10.0	7.40	I	63.0	0.0	18.0	566.0	



*L	29.4	34.2	14.8	10.95	0.00	I	I	67.	38.	21.	552.
OCT*F	37.0	35.9	10.9	8.08	0.00	I	I	63.	32.	22.	552.
*M	12.2	37.0	0.7	0.54	0.00	I	I	47.	22.	22.	553.
*L	63.4	35.3	11.5	7.72	0.00	I	I	66.	19.	22.	553.
NOV*F	0.0	30.9	0.7	0.54	0.00	I	I	43.	11.	22.	553.
*M	0.0	31.3	0.7	0.54	0.00	I	I	21.	0.	20.	552.
*L	0.0	22.6	0.7	0.53	0.00	I	I	0.	0.	20.	552.
DEC*F	14.0	14.0	0.7	0.53	0.00	I	I	0.	0.	19.	552.
*M	7.8	7.8	0.7	0.53	0.00	I	I	0.	0.	18.	552.
*L	0.0	0.0	0.7	0.48	0.00	I	I	0.	0.	18.	552.
1964 JAN*F	0.0	0.0	0.7	0.52	0.00	I	I	0.	0.	17.	552.
*M	0.0	0.0	0.7	0.52	0.00	I	I	0.	0.	17.	552.
*L	0.0	0.0	0.7	0.47	0.00	I	I	0.	0.	17.	552.
FEB*F	0.0	0.0	0.7	0.52	0.00	I	I	0.	0.	16.	552.
*M	7.1	7.1	0.7	0.51	0.00	I	I	0.	0.	16.	552.
*L	0.0	0.0	0.7	0.51	0.00	I	I	0.	0.	15.	551.
MAR*F	0.0	0.0	0.7	0.51	0.00	I	I	0.	0.	15.	551.
*M	0.0	0.0	0.7	0.51	0.00	I	I	0.	0.	14.	551.
*L	0.0	0.0	0.7	0.46	0.00	I	I	0.	0.	14.	551.
APR*F	0.0	0.0	0.7	0.50	0.00	I	I	0.	0.	13.	550.
*M	0.0	0.0	0.7	0.50	0.00	I	I	0.	0.	13.	550.
*L	15.6	15.6	0.7	0.50	0.00	I	I	0.	0.	13.	550.
MAY*F	37.6	37.6	0.7	0.50	0.00	I	I	0.	0.	12.	550.
*M	152.4	52.3	20.2	14.96	0.00	I	I	81.	0.	12.	549.
*L	60.7	42.5	19.1	12.87	0.00	I	I	79.	1.	11.	549.
JUN*F	77.4	36.4	24.9	18.42	0.00	I	I	88.	8.	11.	549.
*M	50.9	35.8	19.9	14.76	0.00	I	I	80.	12.	12.	548.
*L	44.6	36.4	15.4	11.43	0.00	I	I	73.	12.	12.	548.
JUL*F	37.1	34.5	11.3	8.40	0.00	I	I	66.	11.	12.	548.
*M	68.1	34.5	18.6	13.75	0.00	I	I	78.	14.	12.	548.
*L	136.6	36.9	43.3	29.19	0.00	I	I	117.	30.	13.	547.
AUG*F	21.5	30.0	22.7	16.84	0.00	I	I	82.	33.	14.	547.
*M	53.9	31.4	21.9	16.20	0.00	I	I	80.	35.	15.	547.
*L	55.7	32.8	21.7	14.61	0.00	I	I	79.	36.	15.	547.
SEP*F	23.4	34.1	10.6	7.87	0.00	I	I	62.	31.	17.	547.
*M	82.7	34.6	23.7	17.57	0.00	I	I	83.	33.	18.	546.
*L	48.8	34.2	20.0	14.80	0.00	I	I	77.	34.	19.	546.
OCT*F	35.0	35.9	12.9	9.55	0.00	I	I	67.	30.	19.	546.
*M	85.8	37.0	25.6	18.98	0.00	I	I	87.	33.	20.	546.
*L	21.2	35.3	11.6	7.81	0.00	I	I	65.	29.	20.	546.
NOV*F	0.0	30.9	0.7	0.53	0.00	I	I	42.	19.	21.	546.
*M	0.0	31.3	0.7	0.53	0.00	I	I	20.	10.	20.	546.
*L	0.0	29.7	0.7	0.52	0.00	I	I	0.	0.	20.	546.
DEC*F	0.0	0.4	0.7	0.52	0.00	I	I	0.	0.	19.	546.
*M	0.0	0.0	0.7	0.52	0.00	I	I	0.	0.	18.	546.
*L	0.0	0.0	0.7	0.47	0.00	I	I	0.	0.	18.	546.
1965 JAN*F	0.0	0.0	0.7	0.51	0.00	I	I	0.	0.	17.	546.
*M	0.0	0.0	0.7	0.51	0.00	I	I	0.	0.	17.	546.
*L	0.0	0.0	0.7	0.46	0.00	I	I	0.	0.	16.	546.
FEB*F	26.0	25.3	0.7	0.51	0.00	I	I	1.	0.	16.	545.
*M	0.0	0.7	0.7	0.51	0.00	I	I	0.	0.	15.	545.
*L	0.0	0.0	0.7	0.63	0.00	I	I	0.	0.	15.	545.
MAR*F	0.0	0.0	0.7	0.50	0.00	I	I	0.	0.	14.	545.
*M	0.0	0.0	0.7	0.50	0.00	I	I	0.	0.	14.	545.
*L	0.0	0.0	0.7	0.45	0.00	I	I	0.	0.	13.	544.
APR*F	0.0	0.0	0.7	0.50	0.00	I	I	0.	0.	13.	544.
*M	0.0	0.0	0.7	0.49	0.00	I	I	0.	0.	13.	544.
*L	0.0	0.0	0.7	0.49	0.00	I	I	0.	0.	12.	543.
MAY*F	0.0	0.0	0.7	0.49	0.00	I	I	0.	0.	12.	543.
*M	18.2	18.2	0.7	0.49	0.00	I	I	0.	0.	11.	543.



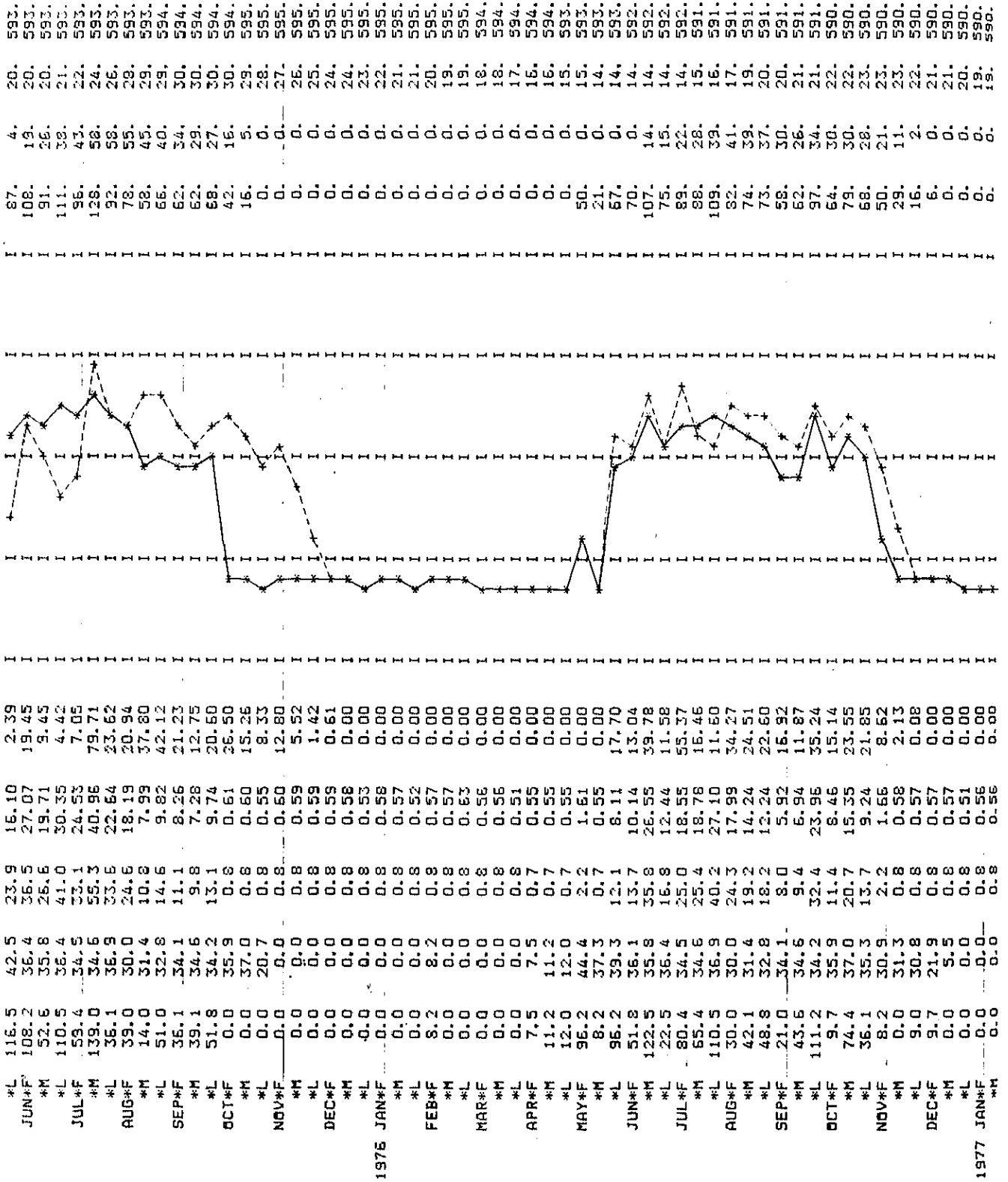


Table 3B-7

PROJECT-----SOUTH NAWIN

RUNOFF (10 DAILY) TABLE

UNIT=*1000 CUB. M

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	510	501	493	486	479	472	5672	9492	10474	3279	459	454	
1947*M	507	498	490	483	476	7344	5596	9167	5465	2791	457	452	
*L	504	496	488	481	474	13471	18481	9604	11966	8823	455	451	152093
*F	449	445	441	440	439	438	16163	14182	32226	28923	1882	497	
1948*M	448	443	440	439	438	3535	33137	17785	25791	10556	622	494	
*L	446	442	440	439	438	27398	22537	22772	18430	10668	500	492	295747
*F													
1949*M													
*L													
*F													
1950*M													
*L													
*F	489	481	474	467	461	455	4043	12789	34378	21565	4715	469	
1951*M	486	478	471	465	459	15259	860	6565	14635	13409	471	467	
*L	483	476	469	463	457	12146	13378	5165	19881	14853	471	465	202528
*F	463	456	451	446	441	9833	23645	24669	17439	16128	22923	1578	
1952*M	460	455	449	444	439	24900	21036	21469	17719	8190	14522	525	
*L	458	453	447	443	438	24660	37405	26486	24261	38061	3479	523	386194
*F	519	509	499	490	8634	475	19783	20774	20832	15994	496	488	
1953*M	516	505	496	487	3651	472	7760	24077	12222	5541	494	485	
*L	512	502	493	485	477	4212	19507	17913	18166	1425	491	483	210865
*F	480	473	466	460	455	11364	13708	17019	9568	34413	11528	500	
1954*M	478	471	464	458	453	15072	18910	11491	29597	16617	2430	498	
*L	475	469	462	456	5145	13429	9324	8297	28731	24597	1081	495	290334
*F	493	484	477	469	463	11367	17367	18159	14544	7367	5119	494	
1955*M	490	482	474	467	6392	19092	18440	16241	10871	8635	5390	491	
*L	487	479	472	465	14090	26310	24644	13683	11818	11033	496	488	268933
*F	485	478	471	464	458	15942	7356	14179	6698	8223	477	471	
1956*M	483	475	468	462	12953	12775	10851	13770	15113	16376	476	468	
*L	480	473	466	460	12262	10855	27106	13738	12737	7408	473	466	226494

PROJECT-----SOUTH NAWIN / RUNOFF (10 DAILY) TABLE (??) UNIT-->1000 CUB.M

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	464	458	452	447	442	16954	6344	17018	14051	20249	456	451	
1957*M	462	456	450	445	441	5862	5112	20901	5903	7624	455	449	
*L	460	454	449	444	439	6474	13134	17503	22369	456	453	447	169428
*F	445	440	435	431	427	424	11194	21271	13432	9367	9326	472	
1958*M	444	439	434	430	426	12051	12467	25382	17345	17374	970	469	
*L	442	437	432	428	424	12232	33020	19762	21429	15656	473	467	261037
*F	464	457	451	445	439	13389	11231	18807	17765	24986	13892	1777	
1959*M	462	455	449	443	437	3462	9915	13475	13629	18953	2765	475	
*L	459	453	447	441	436	4388	18972	22299	29451	17538	821	472	265200
*F	470	462	455	448	443	437	20601	15746	12861	18050	1910	475	
1960*M	467	459	453	446	441	29544	9539	20949	17068	18042	479	472	
*L	464	457	451	444	436	14234	4390	19753	20852	6134	478	469	240079
*F	467	459	453	446	440	8282	21912	22675	22598	10792	3892	499	
1961*M	464	457	450	444	439	24642	37772	17380	25480	15147	590	496	
*L	462	455	448	442	437	21141	23894	24157	20672	12218	502	493	321998
*F	490	480	472	464	457	3496	12731	16278	10343	10350	5002	495	
1962*M	486	478	469	462	455	34758	23752	23838	21906	10115	499	491	
*L	483	475	467	460	453	22222	25714	10442	16870	15154	497	488	272492
*F	485	477	469	462	455	449	9643	33959	17731	6982	465	453	
1963*M	482	474	467	460	453	565	7035	21544	16078	466	463	456	
*L	480	472	464	457	451	2889	15674	15101	9462	7333	460	454	174675
*F	452	446	440	435	431	15916	7255	14554	6798	8255	456	451	
1964*M	450	444	439	434	429	12749	11883	14001	15181	16397	455	449	
*L	448	442	437	432	427	9876	27743	13885	12784	7421	453	447	228301
*F	445	439	434	429	424	420	24845	20562	18802	22517	20858	783	
1965*M	443	437	432	427	423	7947	15243	12126	11965	20052	6973	481	
*L	441	436	431	426	422	13805	23029	14656	20366	33480	1996	478	297873
*F	475	467	459	452	446	3736	12694	22010	20923	16789	469	461	
1966*M	473	464	457	450	444	4840	19042	21981	17597	4936	466	458	
*L	470	462	455	448	442	13566	20502	16330	6416	469	640	456	211644

(3)

PROJECT-----SOUTH NAWIN

RUNOFF (10 DAILY) TABLE

UNIT=*1000 CUB.M

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	453	447	441	435	430	425	7338	25187	34789	6220	471	454	
1967*M	451	445	439	433	428	3246	22500	18540	25909	1388	469	461	
*L	449	443	437	432	427	422	28780	31308	20710	588	466	459	237530
*F	456	449	443	437	431	11163	14060	16048	20671	12798	8405	470	
1968*M	454	447	441	435	430	13597	7528	29169	17401	14120	1133	468	
*L	451	445	439	433	428	13274	12766	35184	8205	24115	472	465	268129
*F	462	455	448	441	435	28434	39973	25475	30714	30656	2934	548	
1969*M	460	452	446	439	434	23118	32363	54583	21001	18782	1484	543	
*L	457	450	443	437	35663	33255	23511	34815	26630	7993	551	539	479824
*F	534	521	510	499	490	20180	15250	33381	37189	12234	6663	567	
1970*M	530	517	506	496	487	28375	16371	59232	33704	24650	2429	563	
*L	526	514	503	493	484	16227	17103	49416	21104	19791	1092	539	423690
*F	554	541	529	518	507	19440	12848	25571	23649	6143	536	526	
1971*M	549	536	525	514	504	12069	22243	14385	29362	1760	533	522	
*L	545	532	521	511	502	19440	27081	22884	20741	538	529	519	274630
*F	515	506	497	490	482	476	4125	20137	9474	11256	482	475	
1972*M	512	503	495	487	480	1954	10701	16052	17544	485	480	473	
*L	509	500	492	485	478	1696	21937	11816	12059	484	7183	471	157191
*F	469	463	458	453	449	14741	34086	26337	22154	8793	5494	555	
1973*M	467	461	456	452	452	15302	30472	20533	15172	18477	6183	551	
*L	465	460	455	450	450	67462	30082	28266	17881	7186	1771	547	534088
*F	543	532	521	512	503	16672	17792	17950	29479	5373	548	538	
1974*M	539	528	518	509	500	17521	14575	38975	18598	1940	545	534	
*L	535	525	515	506	496	22699	19581	37675	19151	563	541	530	305932
*F	527	517	509	501	491	23392	21192	15718	7135	524	515	507	
1975*M	524	514	506	498	491	17032	35390	6905	6287	521	512	504	
*L	521	512	503	496	491	26222	21520	9337	8416	518	509	501	229514
*F	499	492	485	479	472	8759	16026	15548	5111	7306	1438	492	
1976*M	496	489	483	477	472	22938	16226	12300	6000	13264	497	490	
*L	494	487	481	475	471	10748	25751	11636	20704	8781	495	488	220406

PROJECT-----SOUTH NAWIN (4)

RUNOFF (10 DAILY) TABLE

UNIT=*1000 CUB. M

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	485	479	473	468	463	1627	18716	21214	19564	29482	2527	512	
1977*M	483	477	471	466	461	3526	21449	11845	30480	23191	1148	510	
*L	481	475	470	464	3367	8234	25531	13980	31618	9633	514	507	285791

Table 3B-8

* DIVERSION DAM AREA C.A. 201 (JUN-12)		RUNOFF (10 DAILY) TABLE												UNIT: 1000 C.U.F.M		
		JUN	FEB	MAR	APL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL		
*F	184	181	176	175	174	171	1522	4810	12945	8121	1775	177				
1954*M	183	180	177	175	173	170	224	2472	5511	5029	177	175				
*L	182	179	177	174	172	169	5030	1945	7110	5591	177	175	76363			
*F	174	172	170	168	166	163	3934	9292	6567	6073	5632	594				
1952*M	173	171	169	167	165	162	7821	8084	6672	3084	5458	188				
*L	172	171	169	167	165	163	14088	2974	9138	14322	1310	187	145422			
*F	195	192	189	185	181	179	7459	7823	7845	6023	187	184				
1953*M	194	190	187	183	179	176	5322	9066	4602	2087	186	182				
*L	193	189	186	183	180	1505	7245	6745	6841	537	185	182	79408			
*F	181	178	175	173	171	167	5162	6409	3602	12359	4341	183				
1954*M	180	177	175	172	171	168	7121	4327	11145	8297	915	183				
*L	179	177	174	172	169	167	3511	3124	10819	3252	407	186	109328			
*F	186	182	180	177	174	170	6540	6838	5477	3774	1939	186				
1955*M	185	182	179	175	173	170	6344	6116	4084	3252	2105	185				
*L	183	180	178	175	173	170	9280	5152	4450	4155	487	184	101273			
*F	183	180	177	175	172	169	6003	5339	2522	3096	180	177				
1956*M	182	179	176	174	172	169	4082	5185	5691	6167	179	176				
*L	181	178	175	173	171	168	10207	5172	4796	2790	178	175	85286			
*F	175	172	170	168	166	163	6384	6409	5291	7625	172	170				
1957*M	174	172	169	167	165	162	2207	7871	2223	2971	171	169				
*L	173	171	169	167	165	163	2438	6591	8423	172	171	169	71330			
*F	168	165	164	162	161	160	4215	8010	5058	3527	3512	178				
1958*M	167	165	163	162	160	158	4695	9558	6531	6542	365	177				
*L	166	165	163	161	160	158	12434	7442	8069	5895	178	176	98319			
*F	175	172	170	168	165	162	5042	7082	6690	9409	5231	669				
1959*M	174	171	169	167	165	163	1384	5074	5132	7137	1041	179				
*L	173	171	168	166	164	162	7144	8397	11090	6604	309	178	99865			
*F	177	174	171	169	167	165	7758	5929	4843	6797	719	179				
1960*M	176	173	171	168	166	164	3592	7889	6427	6794	180	178				
*L	175	172	170	167	165	163	1653	7438	7852	2310	180	177	90406			

*

(2)

RUNOFF (10 DAILY) TABLE

UNIT=1000 CUB.M

YEAR	JUN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	176	173	171	163	166	1110	5214	9529	8510	4064	1400	198	
1961*M	175	172	169	167	165	9270	14214	6545	9595	5704	222	187	
*L	174	171	169	166	165	7981	9998	9097	7784	4601	199	198	121219
*F	185	181	170	175	172	1310	4794	6130	3895	3897	1884	186	
1962*M	183	180	177	174	171	13089	8344	8976	8249	3809	188	185	
*L	182	179	176	173	171	8368	9693	3932	6353	5706	187	184	102612
*F	183	180	177	174	171	169	3631	12788	6677	2629	175	172	
1963*M	182	178	176	173	171	2649	8113	5054	6054	175	174	172	
*L	181	178	175	172	170	1088	5902	5686	3663	2761	173	171	65776
*F	170	168	166	164	162	5993	2732	5480	2560	3109	172	170	
1964*M	169	167	165	163	162	4868	4475	5272	5717	6174	171	169	
*L	169	166	165	163	162	3719	10447	5229	4814	2794	171	168	85969
*F	168	165	163	162	160	158	3356	7743	7080	8479	7854	295	
1965*M	167	165	163	161	159	2990	5740	4566	4506	7551	2626	181	
*L	166	164	162	160	159	5198	8572	5519	7659	12607	752	180	112159
*F	179	175	173	170	168	1407	4780	8208	7879	6322	176	174	
1966*M	178	175	172	169	167	1823	7171	8277	6626	1859	175	172	
*L	177	174	171	169	166	5108	7720	6149	2416	177	241	172	79899
*F	171	168	166	164	162	160	2763	9484	13100	2342	177	175	
1967*M	170	168	165	163	161	1222	8473	6381	9756	749	177	174	
*L	169	167	165	163	161	159	10837	11789	7799	221	175	173	89769
*F	172	169	167	165	162	4204	5294	6043	7784	4819	3164	177	
1968*M	171	168	166	164	162	5120	2935	10984	6553	5317	427	170	
*L	170	168	165	163	161	4998	4807	13249	3090	9081	178	175	100969
*F	174	171	169	166	164	10707	19052	9593	11566	11544	1105	206	
1969*M	173	170	168	165	163	8705	12187	20554	7908	7073	559	204	
*L	172	169	167	165	163	12523	8853	13110	10028	3010	207	203	190692
*F	201	196	192	188	185	7599	5743	12570	14004	4607	2509	214	
1970*M	200	195	191	187	183	10685	6165	22305	12592	9282	915	212	
*L	198	194	189	186	182	6110	8440	19608	7947	7453	411	210	159549

(3)

RUNOFF (10 DAILY TALLE

DIVERSION DAM AREA C.A. 241 (RM 72)

YEAR	JUN	FEB	MAR	APL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	209	204	199	195	191	7228	1822	5528	9935	2217	202	190	
1971*M	207	202	198	194	190	7525	2072	5217	11067	622	201	191	
*L	205	200	196	192	2021	7328	19190	5017	7313	203	190	190	
*F	194	191	187	185	182	722	1552	7503	2500	2029	191	179	
1972*M	193	189	186	183	181	722	2023	6025	3321	121	191	179	
*L	192	188	185	182	180	522	2061	4429	2521	122	190	177	5029
*F	177	174	172	171	169	5521	12828	9910	2242	2211	2029	202	
1973*M	176	174	172	170	2025	5021	11275	7722	2712	2029	202	202	
*L	175	173	171	169	2752	25232	11229	18522	6722	2702	202	202	115297
*F	204	200	196	193	189	6273	6700	6759	11101	2022	202	202	
1974*M	203	199	195	192	182	6272	2500	14677	7000	721	202	202	
*L	201	198	194	191	6251	2523	2723	14167	7212	212	202	200	115297
*F	198	195	192	189	1672	2009	2022	2019	2627	127	191	191	
1975*M	197	194	191	188	185	2122	13227	2000	2007	122	190	190	
*L	196	193	189	187	5760	2022	2162	2516	2169	122	190	190	26209
*F	188	185	183	180	522	2222	2022	2022	2522	2751	241	185	
1976*M	187	184	182	180	170	2222	2110	2522	2522	2022	202	185	
*L	186	183	181	179	2904	2022	2522	2522	2796	2207	184	184	22297
*F	183	180	178	176	174	612	2022	2000	7007	11102	202	192	
1977*M	182	180	177	175	174	2222	2022	2460	2179	2722	202	192	
*L	181	179	177	175	2022	2162	2612	2262	11906	2522	184	191	107619

Table 3B-9

RUNOFF (10 DAILY) TABLE

SHWELE CHAUNG AREA C.A. 51.5 (KM**2)

UNIT=*1000 CUB. M

YEAR	JUN	FEB	MAR	APL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
*F	47	46	45	45	44	44	389	1231	3309	2075	454	45	45
1951*M	47	46	45	45	44	1470	83	632	1409	1291	45	45	45
*L	46	46	45	45	44	1169	1288	497	1817	1430	45	45	19495
*F	45	44	43	43	42	946	2275	2374	1679	1552	2206	152	45
1952*M	44	44	43	43	42	2397	2025	2066	1705	788	1398	51	45
*L	44	44	43	43	42	2374	3600	2549	2335	3663	335	50	37170
*F	50	49	48	47	831	46	1904	1999	2005	1539	48	47	47
1953*M	50	49	48	47	351	45	747	2317	1175	533	48	47	47
*L	49	48	47	47	46	405	1878	1724	1748	137	47	46	20293
*F	46	46	45	44	44	1094	1319	1638	921	3312	1110	48	48
1954*M	46	45	45	44	44	1451	1820	1106	2849	1599	234	48	48
*L	46	45	44	44	495	1293	897	799	2765	2367	104	48	27945
*F	47	47	46	45	45	1094	1672	1748	1400	709	493	48	48
1955*M	47	46	46	45	615	1838	1775	1563	1046	831	538	47	47
*L	47	46	45	45	1356	2532	2372	1317	1137	1062	48	47	25885
*F	47	46	45	45	44	1534	708	1365	645	791	46	45	45
1956*M	46	46	45	44	1247	1230	1044	1325	1455	1575	46	45	45
*L	46	46	45	44	1180	968	2609	1322	1226	713	46	45	21800
*F	45	44	44	43	43	1632	611	1638	1352	1949	44	43	43
1957*M	44	44	43	43	42	564	492	2012	568	734	44	43	43
*L	44	44	43	43	42	623	1264	1685	2153	44	44	43	18233
*F	43	42	42	41	41	41	1077	2047	1293	902	898	45	45
1958*M	43	42	42	41	41	1160	1200	2443	1669	1672	93	45	45
*L	43	42	42	41	41	1177	3178	1902	2063	1507	46	45	25130
*F	45	44	43	43	42	1289	1081	1810	1710	2405	1337	171	45
1959*M	44	44	43	43	42	333	954	1297	1312	1824	266	46	46
*L	44	44	43	42	42	422	1826	2146	2835	1588	79	45	23524
*F	45	44	44	43	43	42	1983	1516	1238	1737	184	46	46
1960*M	45	44	44	43	42	2844	918	2016	1643	1737	46	45	45
*L	45	44	43	43	119	1370	423	1901	2007	590	46	45	23108

SHWELE CHAUNG AREA C.A. 61.6 (KM**2) RUNOFF (10 DAILY) TABLE (2)

UNIT=*1000 CUB. M

YEAR	JUN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1961*	45	44	44	43	42	797	2099	2182	2175	1039	375	48	48
	44	44	43	43	42	2372	3636	1673	2452	1458	57	48	48
	44	44	43	43	42	2035	2300	2325	1990	1176	48	47	30983
1962*	47	46	45	45	44	336	1225	1567	996	996	481	48	48
	47	46	45	44	44	3345	2286	2294	2108	974	48	47	47
	46	46	45	44	44	2139	2475	1005	1624	1459	48	47	26226
1963*	47	46	45	44	44	43	928	3269	1707	672	45	44	44
	46	46	45	44	44	54	677	2074	1548	45	45	44	44
	46	45	45	44	43	278	1509	1453	911	706	44	44	16814
1964*	44	43	42	42	41	1532	698	1401	654	795	44	43	43
	43	43	42	42	42	1227	1144	1348	1461	1578	44	43	43
	43	43	42	42	42	951	2670	1336	1230	714	44	43	21974
1965*	43	42	42	41	41	40	2391	1979	1810	2167	2008	75	75
	43	42	42	41	41	765	1467	1167	1152	1930	671	46	46
	42	42	41	41	41	1329	2217	1411	1960	3222	192	46	28670
1966*	46	45	44	44	43	360	1222	2118	2014	1616	45	44	44
	46	45	44	43	43	466	1833	2116	1694	475	45	44	44
	45	44	44	43	43	1306	1973	1572	618	45	62	44	20374
1967*	44	43	42	42	41	41	706	2424	3348	599	45	45	45
	43	43	42	42	41	312	2166	1784	2494	191	45	44	44
	43	43	42	42	41	41	2770	3013	1993	57	45	44	22841
1968*	44	43	43	42	41	1074	1353	1545	1990	1232	809	45	45
	44	43	42	42	41	1309	725	2808	1675	1359	109	45	45
	43	43	42	42	41	1278	1229	3386	790	2321	45	45	25808
1969*	44	44	43	42	42	2737	3847	2452	2956	2951	282	53	53
	44	44	43	42	42	2225	3115	5254	2021	1808	143	52	52
	44	43	43	42	42	3201	2263	3351	2563	769	53	52	46183
1970*	51	50	49	48	47	1942	1468	3213	3579	1178	641	55	55
	51	50	49	48	47	2731	1576	5701	3244	2373	234	54	54
	51	49	48	47	47	1562	1646	4756	2031	1905	105	54	40780

SHWELE CHAUNG AREA C.A. 51.6 (KM**2) RUNOFF (10 DAILY) TABLE (3) UNIT=*1000 CUB. M

YEAR	JUN	FEB	MAR	APL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1971*	53	52	51	50	49	1871	1237	2461	2276	591	52	51	
	*F	52	51	49	49	1162	2141	1385	2826	169	51	50	
	*L	51	50	49	570	1871	2607	2203	1996	52	51	50	26434
1972*	50	49	48	47	46	46	397	1938	912	1083	46	46	
	*F	48	48	47	46	188	1030	1545	1689	47	46	46	
	*L	48	47	47	46	163	2111	1137	1161	47	691	45	15129
1973*	45	45	44	44	43	1419	3281	2535	2132	846	529	53	
	*F	44	44	44	842	14948	2933	1976	1460	1778	595	53	
	*L	44	44	43	706	6493	2895	2721	1721	692	170	53	51405
1974*	52	51	50	49	48	1605	1712	1728	2837	517	53	52	
	*F	51	51	50	48	1586	1403	3751	1790	187	52	51	
	*L	51	51	50	1623	2185	1885	3626	1843	54	52	51	29444
1975*	51	50	49	48	47	2251	2040	1513	587	50	50	49	
	*F	49	49	49	47	1639	3406	665	605	50	49	49	
	*L	49	49	48	1472	2524	2071	899	810	50	49	48	22089
1976*	48	47	47	46	45	843	1543	1496	492	703	138	47	
	*F	47	47	46	45	2208	1562	1184	577	1277	48	47	
	*L	48	47	46	742	1034	2479	1120	1993	845	48	47	21213
1977*	47	46	46	45	45	157	1801	2042	1883	2838	243	49	
	*F	46	46	45	44	339	2064	1140	2934	2232	110	49	
	*L	46	46	45	324	793	2457	1346	3043	927	49	49	27506

Table 3B-10 Climatological Records at Frome Station

	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>Jun.</u>	<u>Jul.</u>	<u>Aug.</u>	<u>Sep.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Remarks</u>
Temperature (°C)	31.6	34.9	38.5	40.0	37.1	36.7	30.4	31.6	31.6	32.0	31.3	30.0	Maximum
	16.2	16.7	20.6	24.4	24.2	24.5	24.4	24.3	24.1	23.0	20.9	17.2	Minimum
Relative- humidity (%)	41	61	48	55	65	85	88	89	86	86	77	70	9:30 AM
	48	35	35	42	60	86	86	86	89	82	70	60	6:30 PM
Wind Speed (km/hr)	4.02	4.51	4.67	6.44	6.11	5.15	4.67	4.51	3.70	3.54	4.35	5.79	
Actual Sunshine Time (hrs)	289	286	289	284	224	136	157	119	175	228	231	274	
Pan Evaporation (mm/day)	4.3	5.7	7.9	9.0	7.1	4.4	4.0	3.8	4.1	4.3	4.0	3.8	Annual Total 1,893.7 mm

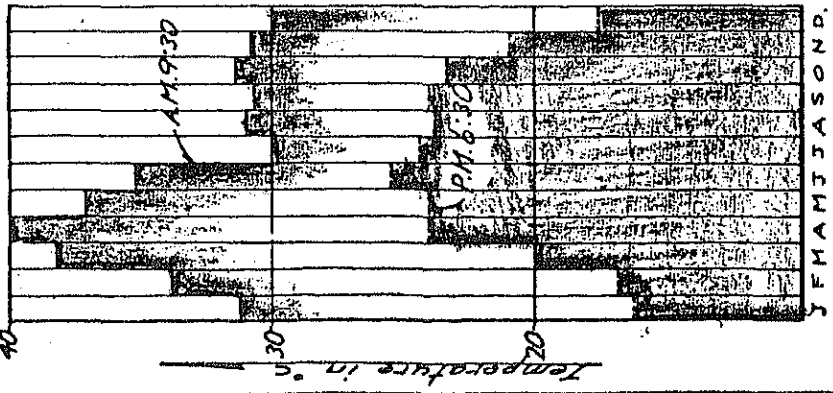
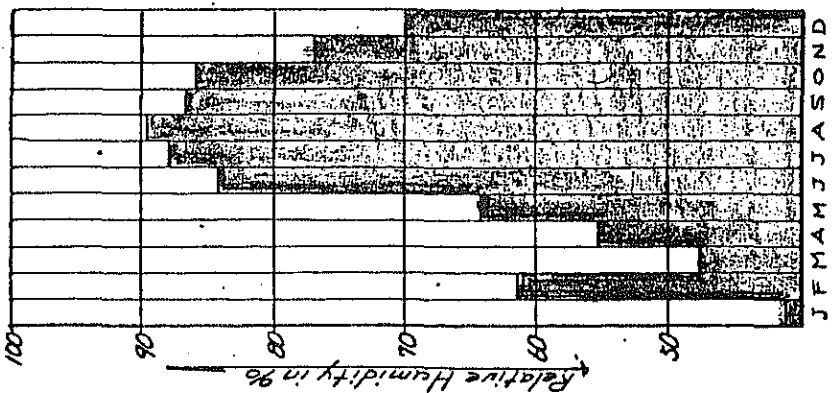
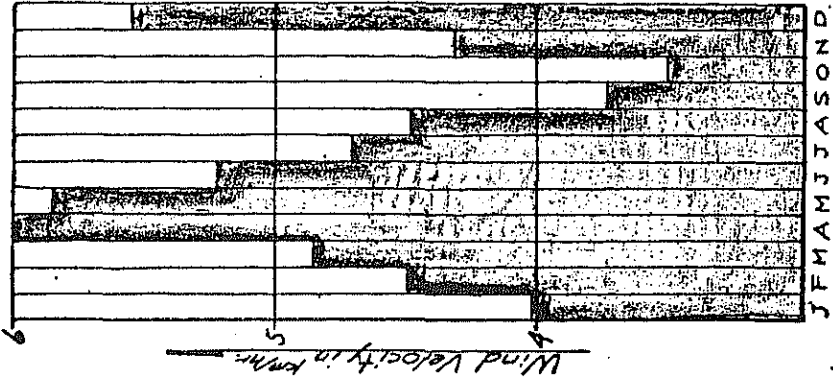
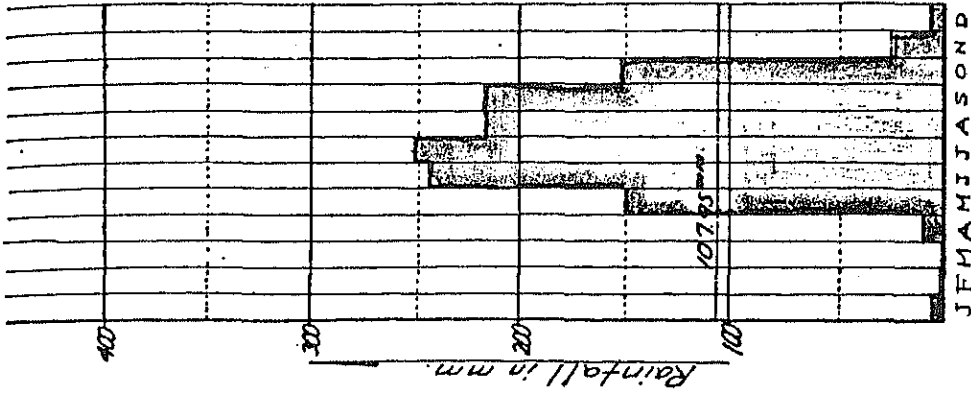
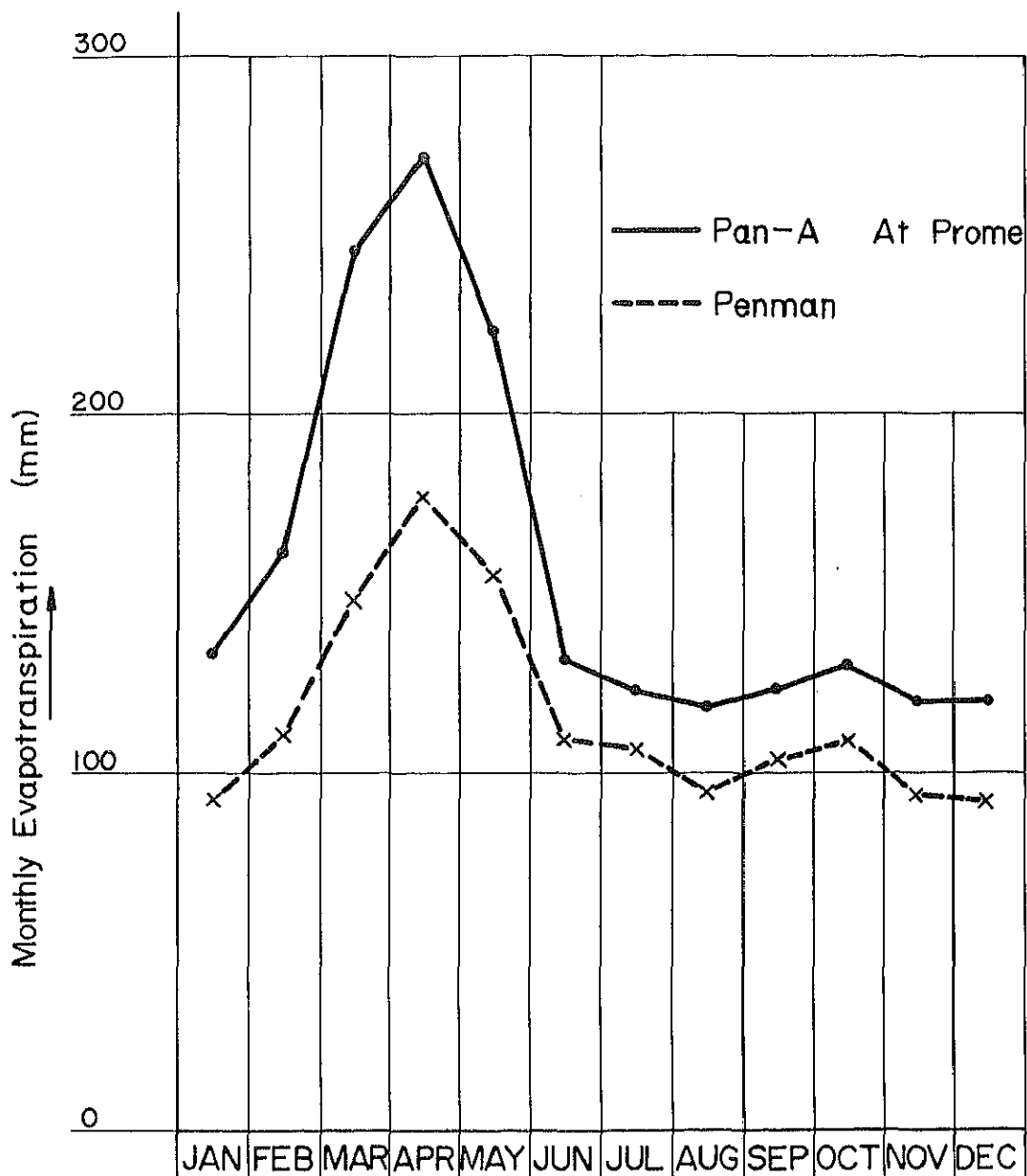


FIG. 3B-10

Table 3B-11 Evapotranspiration Ratio Between
Pan-A Observation and Penman Method

Month	Evaporation (Pan-A)		Evapo- transpiration (Penman)	Ratio (2)/(1)	
	mm/10 day	mm/month (1)	mm/month (2)		
Jan.	(F)	40.2	88.3	95.2	0.71
	(M)	42.9			
	(L)	50.2			
Feb.	(F)	52.7	160.7	110.3	0.69
	(M)	57.0			
	(L)	51.0			
Mar.	(F)	71.0	244.5	148.2	0.61
	(M)	81.8			
	(L)	91.7			
Apr.	(F)	84.1	271.1	177.0	0.65
	(M)	91.6			
	(L)	95.4			
May	(F)	84.7	222.0	155.0	0.70
	(M)	76.4			
	(L)	60.9			
Jun.	(F)	44.0	131.1	108.6	0.83
	(M)	43.2			
	(L)	43.9			
Jul.	(F)	39.9	122.6	106.0	0.86
	(M)	40.0			
	(L)	42.7			
Aug.	(F)	37.6	118.1	94.2	0.80
	(M)	39.4			
	(L)	41.1			
Sep.	(F)	40.7	122.7	102.9	0.84
	(M)	41.2			
	(L)	40.8			
Oct.	(F)	42.8	129.0	108.2	0.84
	(M)	44.1			
	(L)	42.1			
Nov.	(F)	39.7	119.3	93.0	0.78
	(M)	40.1			
	(L)	39.5			
Dec.	(F)	37.9	119.3	90.8	0.76
	(M)	38.5			
	(L)	42.9			
Average					0.76

Fig 3B-11 EVAPO TRANSPIRATION



EVAPOTRANSPIRATION ^{mm/10days}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
First	28.7	36.2	43.0	54.9	59.2	36.4	34.5	30.0	34.1	35.9	30.9	28.8
Middle	30.6	39.1	49.6	59.8	53.3	35.8	34.6	31.4	34.6	37.0	31.3	29.3
Last	35.9	35.0	55.6	62.3	42.5	36.4	36.9	32.8	34.2	35.3	30.8	32.7

3B-10. Soil and Land Classification

1. Introduction

The soil survey has been carried out to examine the following items:

- 1) To review the report on the Project Area soil survey conducted by the Irrigation Project Section (IPS) in the Irrigation Department, Burma.
- 2) To re-examine the present soil conditions.
- 3) To collect necessary data for the feasibility study.

As to the field survey, soil and land classification map (scale: 1/24,000) and its reports prepared by IPS were used as the base map. And the soil survey reports on the North Nawin Irrigation Project Area (1967) also were collected for this study. During the field survey, present land use survey and boring tests were conducted, and necessary data and information were collected.

2. The Project Area

As shown in Fig. 3B-12, the soil surveyed area (138,824 acres) includes Paukkaung basin, eastern part of the area between the North Nawin chaung and Prome-Paukkaung road, the moderately steeped area of the Pegu Yoma piedmont, and a part of the Inma In, but the project area (73,981 acres) does not include their region.

1) Parent Materials

The parent materials are classified into five kinds:

- (i) Colluvium, (ii) Old Alluvium, (iii) Young Alluvium,
- (iv) Young Fluvium, (v) Lacustrine Materials.

Most of these parent materials are of sedimentary origin.

2) Geomorphology

As shown in Fig. 3B-13, the geomorphological aspect of the project area is divided into six major categories; namely, i) Piedmont fan, ii) Upper piedmont plain, iii) Lower piedmont plain, iv) Active flood plain, v) Inundation flood plain, vi) Levee.

The piedmont fan lies at the western side of the Pegu Yoma. Both the upper and lower piedmont plains are the most dominant in the project area.

The active flood plain is mostly situated in the south of the area lying between the Inma and Wegyi chaung. The situation of inundation flood plain agrees almost with that of the area called the Inma In. Levees are found in a part of the southern bank of the North Nawin chaung and the northern bank of the Wegyi chaung.

3. Soil Classification and Description

1) Introduction

The soil map of the surveyed area is shown in the Fig. 3B-12. The procedures on classification and soil mapping were based on the criteria which were established in the previous soil survey of this project conducted by IPS.

The soils of the surveyed area are classified into seven kinds according to their geomorphological position in the landscape, their parent materials, and soil profiles, as follows:

- a) Meadowish degraded soil (Soil on the Pegu Yoma colluvium)
- b) Meadow soil (Soil on upper piedmont plain)
- c) Meadow gley soil (Soil on lower piedmont plain)
- d) Alluvial soil (Soil on the levee of recent alluvial deposit)

- e) Cinnamon soil (Soil on upper piedmont plain on the old alluvium of streams)
- f) Meadow alluvial soil (Soil on the Wegyi chaung flood plain)
- g) Swampy soil (Soil on the inundation flood plain of back swamp)

2) Characteristics of Each Soil

a) Meadow degraded soil

The soil is generally found on the steep slopes of the piedmont of the Pegu Yoma. Soil texture is coarse with sandy loam to sand throughout the profile, and in sub-soil, there are the iron mottling of grayish brown and the manganese mottling of black color. The soil is moderately acid throughout the profile and drainage is rapid or moderately rapid. The vegetation is secondary forest, and some of the soil have a dark humus horizon, but most top soils are eroded heavily and of low fertility.

Descriptions of soil profile

<u>Horizon</u>	<u>Depth (in.)</u>	<u>Color</u>	<u>Tex- ture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
A _{1p}	0-7	10 YR 6/1 Brownish gray	SL	Slight sub- angular blocky	Few fine faint- yellowish brown	Common
A ₁₂	7-18	10 YR 6/1 Brownish gray	SL	Weak to moderate fine sub- angular blocky	Common medium faint-yellow- ish brown	Very few
C ₁	18-46	10 YR 5/4 Dull yellow- ish brown	S	None	Very few faint- dark brown	None
C ₂	46-60	5B 6/1 Bluish gray	SCL	Moderate fine sub- angular blocky	Many coarse distinctly yellowish brown	None

Location: East of Tegyigon

Land Use: Paddy

b) Meadow soil

The soil is widely distributed in the project area. The soil texture ranges from clay loam to clay, but most of them are grayish colored loam. The top layer is hard and thin porous, mottled with rusty spots. Signs of gleying process can be found in B horizon; few to common ferro-manganese concretion are scattered throughout the profile. Major crop on this soil is paddy.

Description of Soil Profile

<u>Horizon</u>	<u>Depth (in.)</u>	<u>Color</u>	<u>Tex- ture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
Ap	0-10	<u>10 YR 5/1</u> Brownish gray	CL	Moderate fine sub- angular blocky	Few, fine faint- yellowish brown	Common
A ₁₂	10-24	<u>10 YR 5/2</u> Grayish- yellow brown	CL	Moderate fine sub- angular blocky	Common, medium faint-yellowish brown	Few
B ₂₁	24-35	<u>10 YR 4/2</u> Grayish- yellow brown	CL	Moderate fine sub- angular blocky	Few, medium faint-yellowish brown	Very few
B ₂₂	35-45	<u>10 YR 4/2</u> Grayish yellow brown	SiL	Moderate fine sub- angular blocky	Few, fine faint-brown	None
B ₂₃	45-55	<u>10 YR 5/2</u> Grayish yellow brown	C	Moderate fine sub- angular blocky	Few, fine faint-yellow- ish brown	None

Location: East of Thaiktao

Land Use: Paddy

c) Meadow gley soil

The parent materials of the soil covering extensively the southern part of the project area are recent stream alluvium. In general, the soil textures have composition of loam to clay, but the loam or clay loam textured soil is the major type of this soil series.

There is gray or grayish brown loam over grayish yellow brown loam with yellowish brown mottles and few fine soft or hard iron concretion throughout the profile. The permeability is slow, therefore, the soil has slow drainage.

Paddy is the predominant crop, but groundnut or other land crops will be planted after the paddy is harvested. The soil is quite suitable for irrigated agriculture.

Description of Soil Profile

<u>Horizon</u>	<u>Depth (in.)</u>	<u>Color</u>	<u>Tex- ture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
Ap	0-8	<u>10 YR 4/1</u> Brownish gray	CL	Moderate med- ium sub-angu- lar blocky to angular blocky	Few, medium faint-dark yellowish brown	Few to common
B ₁	8-20	<u>10 YR 4/2</u> Grayish yellow brown	C	Moderate med- ium sub-angu- lar blocky	Few, medium faint-yellow- ish brown	Very few
IIA	20-37	<u>10 YR 4/3</u> Dull yellow- ish brown	SiC	Moderate med- ium sub-angu- lar block	Few, fine, faint-yellow- ish brown	None
IIB	37-45	<u>10 YR 5/4</u> Dull yellow- ish brown	CL	Moderate med- ium sub-angu- lar blocky	Few, fine, faint-grayish brown	None

Location: South of Letpandan

Land Use: Paddy

(d) Alluvial soil

Texture of the soil is generally sandy loam, sandy clay loam, and sometimes loamy sand, therefore, its permeability is moderate to moderately high.

The soil has grayish yellow brown surface layer over yellowish brown sub-layer, and the structure is moderate throughout the profile. The land of this soil is mostly used for cultivation of vegetables and flowers, and is grown with paddy to some extent. The soil is suitable for irrigated agriculture.

Description of Soil Profile

<u>Horizon</u>	<u>Depth (in.)</u>	<u>Color</u>	<u>Tex- ture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
Ap	0-5	10 YR 4/3 Dull yel- lowish brown	SCL	None	Few, fine, faint -yellowish brown	Common
A12	5-14	10 YR 4/2 Grayish yellow brown	SL	Slight sub- angular blocky	Few, fine faint-yellowish brown	Few
B21	14-29	10 YR 4/4 Brown	SCL	Moderate medium sub- angular blocky	Few fine faint- gray	None
B22	29-51	10 YR 5/4 Dull yel- lowish brown	SL	Weak sub- angular blocky	Few, fine faint-gray	
C	51-60	10 YR 5/6 Yellowish brown	SL	None	Few, fine faint-gray	None

Location: North of Yathit

Land Use: Crop land

(e) Cinnamon soil

This soil is found in the south side of the South Nawin chaung, therefore, this is not included in the soil-type in the project area. The soil extends on the old alluvium; and is grayish to dark brown in the top layer, and yellowish brown is the sub-layer with many mottles and soft or hard iron concretion. The soil texture is generally loamy throughout the profile.

This land is hardly suitable for irrigated agriculture because of the topographical deficiency, but with extra cost of levelling it may be cultivated with irrigation.

Description of Soil Profile

<u>Horizon</u>	<u>Depth</u> (in.)	<u>Color</u>	<u>Tex- ture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
Ap	0-6	<u>10 YR 3/3</u> Dark brown	SiL	Moderate medi- um sub-angu- lar blocky	Common, fine faint-dark brown	Common
B21	6-17	<u>10 YR 4/2</u> Grayish yellow brown	SiL	Moderate medi- um angular blocky	Few, fine faint-red- dish brown	Few
B22	17-25	<u>10 YR 4/4</u> Brown	SiL	Moderate fine angular blocky	Few, fine faint-yel- lowish brown	Slight

Location: North east of Poundale

Land use: Crop land

(f) Meadow alluvial soil

This is less extensive than the other soils in the surveyed area, and the drainage is slow because of the fine to medium texture. The color of top layer is grayish brown, whereas sub-layer is yellowish brown.

The major crop on this soil is paddy, but some dry crops, early sesame, and jute are grown in the ridge of the old channels.

Description of Soil Profile

<u>Horizon</u>	<u>Depth</u> (in.)	<u>Color</u>	<u>Tex- ture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
Ap	0-6	<u>10 YR 4/2</u> Grayish yellow brown	SiCL	Moderate med- ium sub-angu- lar blocky	Few, fine Dark-grayish yellow	Common
B12	6-28	<u>10 YR 4/3</u> Grayish yellow brown	SiCL	Moderate med- ium sub-angu- lar blocky	Few, fine faint-dark brown	Few
B22	28-40	<u>10 YR 4/4</u> Brown	L	Moderate fine sub-angular blocky	Very few, faint-dark brown	Very few

Location: South of Padigon

Land Use: Paddy

(g) Swampy soil

These soils are not extensive and occur in the low-lying part around the Inma In. x

The soil color is brownish-gray or dark brown for surface layer (10 inches) with yellowish mottles. Below this layer, there is a soil with dark-grayish brown to brown with yellowish brown or gray mottle. The textures are roughly silty clay or clay, so that the drainage is considerably wrong. Accordingly, this condition must be improved under the project. Developing irrigated agriculture is possible, when the improved drainage system is provided.

Description of Soil Profile

<u>Horizon</u>	<u>Depth (in.)</u>	<u>Color</u>	<u>Texture</u>	<u>Structure</u>	<u>Abundance & Color of Mottles</u>	<u>Abundance of Rootlet</u>
Ap	0-10	<u>10 YR 4/1</u> Brownish gray	Si	Moderate medium angular blocky	Few, fine distinct yellowish	Common
A12	10-18	<u>10 YR 4/2</u> Grayish yellow brown	C	Moderate medium angular blocky	Few, fine faint-yellowish brown	Few
A13	18-30	<u>10 YR 4/3</u> Dull yellowish brown	C	Moderate medium angular blocky	Few, fine faint-gray	None
B21	30-46	<u>10 YR 4/4</u> Brown	C	Moderate fine sub-angular blocky	Few, fine faint-gray	None
B22	46-57	<u>10 YR 4/4</u> Brown	C	Moderate fine sub-angular blocky	Few, fine faint-gray	None

Location: West of Talainggon

Land use: Waste land

3) Physical and Chemical Properties of Soils

The summarized physical and chemical properties of the soils in the surveyed area are shown in Table 3B-12.

The general characteristics of each type of soil are shown in Table 3B-13 .

Most of the soils in the project area belong to medium-moderately fine texture soils. The depth of surface soil (Ap horizon) is 5 to 10 inches in paddy field as shown in Fig. 3B-16. Accordingly, it appears that most of the soils in the project area have soil depth enough for paddy production.

Generally, most of the soils in the project area are considerably high in natural fertility.

The pH and percentage of base saturation are collected as shown in Fig. 3B-17. The percentage of base saturation is very useful criteria in depicting the fertility condition in the soil colloid-root environment. The base saturation of the soils in the project area is in the range from 50 to 114 percent for Ap horizon. This may indicate that the leaching under rain-fed on a part of land and salt-accumulating under dried seasons on other lands, and irrigated condition is moderately good.

Humus and nitrogen contents are generally low; however, cation exchange capacity (CEC) is high, except meadowish degraded soil. Exchangeable calcium, magnesium, and sodium are generally high while exchangeable potassium content is very low.

4. Land Classification

1. Introduction

The classification is made in two parts - the first for paddy and then for upland crops. The classification for crops refers simply to the potential for growing such crop in the dry season with irrigation.

The classification for paddy should be considered from the potential productivity in the wet season for the second crops irrigated in the dry season.

The classified system rates the land into five classes of suitability, and the outlines of the classified categories are given in the following table.

<u>In case of dry field farming</u>	<u>In case of paddy growing</u>
1. Very suitable for irrigation farming	R1 Very suitable for irrigation farming
2. Suitable for irrigation farming	R2 Suitable for irrigation farming
3. Moderately suitable for irrigation farming	R3 Moderately suitable for irrigation farming
4. Suitable by kind of crops	R4 Limited arable land
6. Non-arable land	R6 Non-arable land

2 Mapping Symbols

This is the system, based on that of the U.S. Bureau of Reclamation (1951), which classifies the land into six classes of suitability, with sub-classes according to the limitation at present. Each class is divided into two parts; namely, upland crop and paddy.

Class 1 and R1 land have a few limitations and have high net farm income potential. Class 1 is not recognized because of permanent limitation of climate and water logging. The first-class paddy land (R1) is very extensive.

Class 2 and R2 land have moderate limitations which may cause the cost to be increased for development and management or the net farm income to be reduced.

Class 3 and R3 lands have severe limitations which will restrict the choice of crops and will cause the net farm income to be reduced permanently.

Class 4 lands have severe limitations but may be developed by irrigated agriculture with special techniques and improved drains for special crops.

Class 6 and R6 lands are unsuitable for irrigated agriculture because of high reclamation cost and their incapability of producing a satisfactory net farm income. The areas including this kind of lands are hilly.

A summary on acreages of major land classes of the project area is shown in Table 3.

3) Land Classification Criteria

The land classification maps are essentially based on the soil maps with attention to the topography and flood hazard.

The criteria for the classification of the lands for the irrigation of the upland crops are not based on social factors affecting the use of land, such as distance from markets, land occupancy, etc., that are not taken into account. For the purpose of this land classification, it is assumed that all the lands can be commanded by the water supply and can be provided with the drainage system.

The factors used for the land classification are as follows:

(1) Topography, (2) Drainage, (3) Flood Hazard, (4) Texture, (5) Erosion.

4) Description of Land Classes

a) Crop land

- i) Class 2 land is suitable for irrigation in the dry season, and improved drainage may support upland crops in the wet season. Especially, in a part of the land, the drainage is slow and network of drains is required for improving water logging.
- ii) Class 3 land is undulating land with mostly coarse surface texture which will require much land-levelling and is likely to produce permanently reduced net farm income. And in a part of this land, soil has fine and medium textures and is difficult to drain. It is likely to produce reduced net farm income.
- iii) Class 4 land has a very heavy texture and slow drainage because of low and flat topography. This will require expensive drainage network if used for upland crops. And a part of this land gives fine, and medium texture; it will require also expensive cost for levelling.
- iv) Class 6 land is steep rolling or eroded land, mostly on the hill slopes under forest.

b) Paddy land

- i) Class R1 land is very suitable for producing a high net farm income from irrigated paddy. It is flat with fine and medium texture, and has no flood hazard.
- ii) Class R2 land has sloping or undulating topography which will require higher expenditure for levelling. Drainage is better and this land may preferably be used for other upland crops rather than irrigated paddy under present conditions. Introduction of irrigation will necessitate reshaping, enlarging and levelling most of the land to permit efficient use of water.

- iii) Class R3 land has severe limitation in farming due to the soil condition of sandy texture, slope and undulating relief.
- iv) Class R6 land is unsuitable for paddy production because of unfavorable topography. In this area, it is confined to the hill land. The soil of this class is always composed of coarse sand on the sloping land of meadowish degraded soil in the Pegu Yoma piedmont.

Land classification map is given in Fig. 6.

5. Conclusion

- 1) The soils of the surveyed area are predominantly composed of alluvial deposits coming from adjacent hills and mountains. Their texture varies from loamy sand to fine clay. The soil depth is over 40 inches and internal drainage fluctuates from poor to good. The natural fertility ranges from medium to high in crop root zone. Cation exchange capacity and base saturation are likewise medium to high. The pH (water; 1:2.5) value of upper horizon ranges from 5.3 to 8.2. These soils are considered most productive for both paddy and land crops.
- 2) About 75% (for paddy) to 88% (for cropland) in the surveyed area (except miscellaneous land as urban land) is suitable for irrigated agriculture. Most of the area can grow paddy and some dry land crops throughout the year at least. The wet season crop will be paddy or in some parts jute and early sesame in the beginning of the rainy season. Especially cotton can be preferably grown in summer; groundnut, tobacco, peas and bean can be planted in the winter season.
- 3) There are about 38,000 acres of relatively well drained land which may grow upland crops in the rainy season. Most of these land are not very flat and some are covered with thicket. There are about 16,600 acres of land which are good for upland

crops in the dry season, 13,000 acres of which are poorly drained lands which may only be suitable for paddy in the dry season.

4. Under the present soil conditions, soils in the project area are blessed with the potentiality of high yield of paddy and land crops for most of the area. The potentialities in the whole arable land will be improved by cultivation practices with adequate fertilizer application for soil amendment and construction of irrigation and drainage facilities up to on-farm level.

Table 3B-12 Physical and Chemical Properties of Soils in the Surveyed Area

Soil Name	Horizon	Depth (inch)	Particle Size Distribution			pH (H ₂ O)	Humus %	Total carbon %	Nitrogen %	C/N Ratio	Avail-able P ₂ O ₅ (kg/ha)	CEC (me/100g)	Exchangeable Cation (me/100g)				Base Saturation %
			Sand %	Silt %	Clay %								Ca	Mg	K	Na	
Meadowish Degraded Soil	A1P	0-7	76.9	14.8	8.3	SL	5.3	1.2	0.7	0.11	5.4	17.2	5.6	5.0	0.1	1.0	68.0
	A12	7-18	79.0	7.2	13.8	SL	5.8	0.7	0.4	0.03	13.3	29.2	4.8	3.9	0.1	1.2	34.2
	C1	18-46	91.9	7.6	0.5	S	6.5	0.5	0.3	0.03	10.0	14.4	3.8	2.0	tr	1.1	47.9
	C2	46-60	56.5	16.6	26.9	SCL	5.8	0.3	0.2	0.03	6.6	13.3	3.1	6.6	0.1	1.6	85.7
Meadow Soil	Ap	0-10	42.2	29.9	27.9	CL	6.4	2.1	1.2	0.11	9.1	25.2	8.6	1.9	0.2	1.8	49.6
	A12	10-24	41.7	28.8	29.5	CL	6.3	1.7	1.0	0.10	10.0	38.9	13.0	0.7	0.2	2.1	41.1
	B21	24-35	33.5	32.5	34.0	CL	6.6	1.0	0.6	0.08	7.5	38.9	15.6	2.6	0.2	3.4	56.0
	B22	35-45	37.3	52.1	10.6	SiL	7.6	0.7	0.4	0.08	5.0	26.5	11.0	4.4	0.2	3.9	73.6
	B23	45-55	28.3	29.9	41.8	C	7.7	0.3	0.2	0.09	2.2	26.5	16.5	12.1	0.3	6.5	133.6
Meadow Gley Soil	Ap	0-8	32.2	35.6	32.2	CL	5.8	1.5	0.9	0.16	5.6	36.2	17.3	5.8	0.2	2.1	70.2
	B1	8-20	3.8	39.5	56.7	C	6.7	1.2	0.7	0.13	5.4	47.7	25.9	12.6	0.2	2.1	85.5
	I1A	20-37	4.8	47.9	47.3	SiC	6.9	2.1	1.2	0.13	9.2	34.5	13.0	11.6	0.2	2.2	78.3
	I1B	37-45	23.3	41.1	35.6	CL	7.0	0.2	0.1	0.07	14.3	29.4	11.0	9.2	0.4	1.6	75.5
	Ap	0-5	54.6	18.7	26.7	SCL	6.5	0.7	0.4	0.10	4.0	27.7	8.8	6.6	0.2	9.2	89.5
Alluvial Soil	A12	5-14	72.9	15.4	11.7	SL	6.5	0.7	0.4	0.09	4.4	27.4	8.8	6.6	0.1	9.3	90.5
	B21	14-29	60.8	12.2	27.0	SCL	6.7	0.7	0.4	0.08	5.0	38.9	13.2	8.8	0.6	3.0	65.8
	B22	29-51	71.3	15.6	13.1	SL	6.8	0.5	0.3	0.07	4.3	44.2	17.6	2.2	0.4	3.9	54.5
	C	51-60	57.9	29.6	12.5	SL	6.8	0.5	0.3	0.07	4.3	25.4	13.2	6.6	0.3	3.7	93.7
	Ap	0-6	25.5	66.3	8.2	SiL	7.2	1.7	1.0	0.10	10.0	26.5	11.4	6.5	0.2	2.3	76.9
Cinnamon Soil	B21	6-17	36.2	53.5	10.3	SiL	7.3	1.2	0.7	0.06	11.6	24.7	10.3	7.3	0.4	3.1	85.4
	B22	17-25	37.5	51.1	11.4	SiL	7.3	0.7	0.4	0.05	8.0	22.3	10.3	6.1	0.4	4.5	95.5
	Ap	0-6	15.5	53.7	20.8	SiCL	8.0	2.1	1.2	0.10	12.0	29.5	15.1	3.5	0.5	9.0	95.2
Meadow Alluvial Soil	B12	6-28	22.0	50.1	21.9	SiCL	8.2	1.4	0.8	0.07	11.4	27.8	14.5	6.9	0.7	9.0	111.8
	B22	28-40	48.4	40.8	10.8	L	8.1	0.7	0.4	0.03	13.3	25.5	16.3	5.6	0.8	7.7	119.2
	Ap	0-10	0.4	97.7	1.9	Si	6.5	2.4	1.4	0.18	7.7	19.9	10.4	9.6	0.7	2.1	114.6
Swampy Soil	A12	10-18	0.5	14.1	85.4	C	6.7	2.0	1.1	0.16	6.9	27.4	11.7	8.9	0.6	3.4	89.8
	A13	18-30	1.0	10.8	88.2	C	7.6	2.1	1.2	0.14	8.6	30.1	17.6	4.8	0.6	6.6	98.3
	B21	30-46	21.7	30.0	48.3	C	6.5	1.6	0.9	0.12	7.5	43.3	17.3	14.5	0.4	12.4	103.0
	B22	46-57	0.5	11.6	87.9	C	6.7	0.3	0.2	0.11	1.8	32.7	17.8	9.6	0.4	10.3	116.5

Table 3B-13 General Characteristics of Soils

<u>Soil Names</u>	<u>pH</u>	<u>Natural Fertility</u>	<u>Humus Content</u>	<u>Total Nitrogen</u>	<u>Available P₂O₅</u>	<u>CEC</u>	<u>Base Saturation</u>
Meadowish Degraded Soil	5.3-6.5	medium	Low	Low	Low	medium	medium
Meadow Soil	6.4-7.7	high	medium	medium	high	high	medium
Meadow Gley Soil	5.8-7.0	high	medium	moderately high	high	high	high
Alluvial Soil	6.5-6.8	moderately high	Low	medium	high	moderately high	high
Cinnamon Soil	7.2-7.3	moderately high	medium	medium	high	moderately high	high
Meadow Alluvial Soil	8.0-8.2	moderately high	medium	moderately high	medium	moderately high	high
Swampy Soil	6.5-7.2	high	moderately high	moderately high	moderately high	moderately high	high

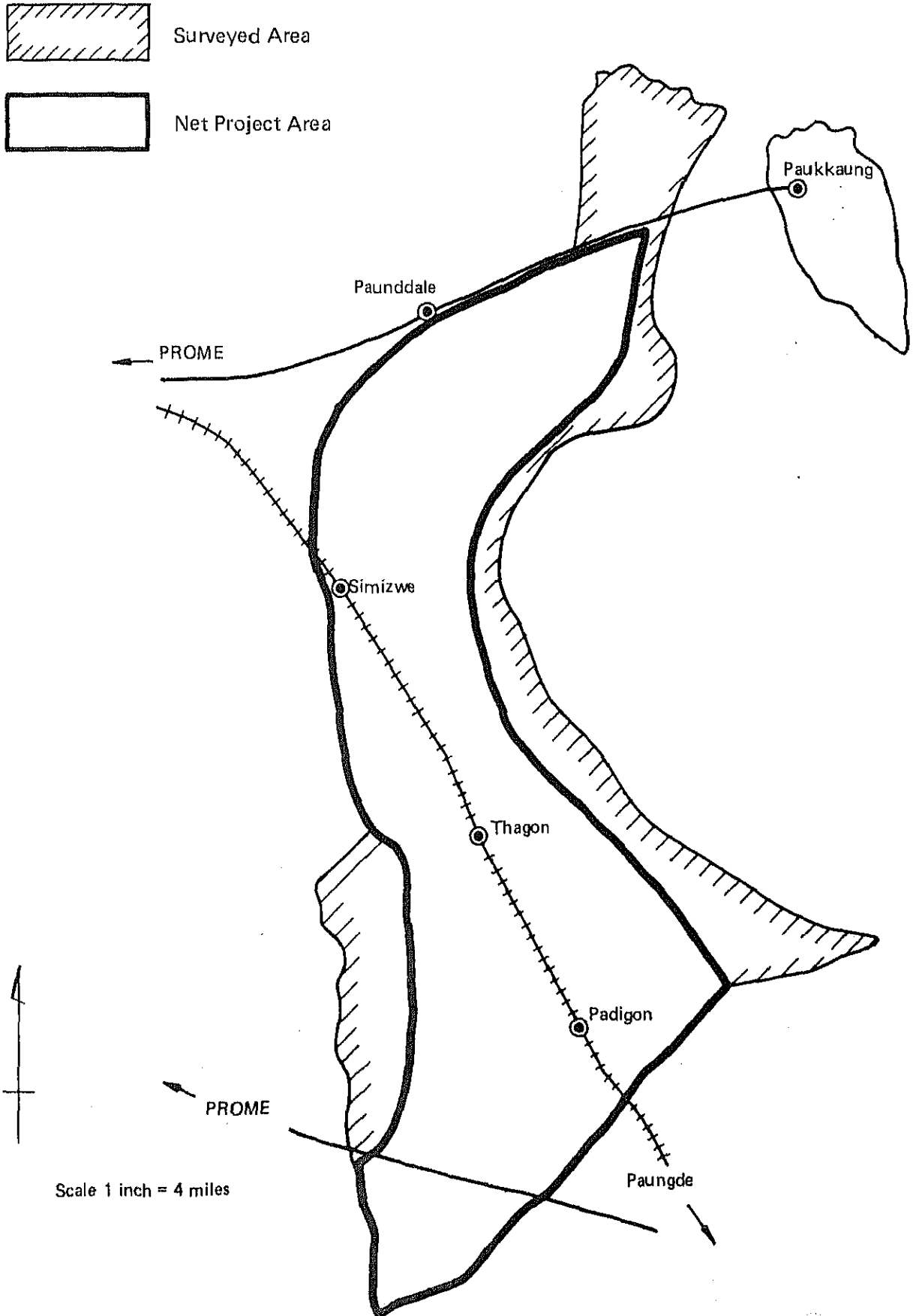
Table 3B-14 Acreage of Major Land Classes of the Surveyed Area

(Note: Except urban land etc.)*

Land class	Sub area				Total
	Thegon Area	Paukkaung Area	Faungadale Area	Orverraing area to North Nawin project area	
Arable Land					
a) In the case of crop land	62,773	6,712	18,359	26,203	114,047
2	45,572	1,370	902	12,098	59,942
3	4,724	3,453	7,961	8,214	24,352
4	12,477	1,189	9,496	5,891	29,753
b) In the case of paddy land	60,894	4,823	8,863	23,033	97,613
R1	46,872	0	189	14,819	61,880
R2	9,298	325	0	0	9,623
R3	4,724	4,498	8,674	8,214	26,110
Non arable land					
6 (on crop)	9,797	1,385	4,199	211	15,592
R6 (on paddy)	11,676	3,274	13,695	3,381	32,026
Total	72,570	8,097	22,558	26,414	129,639

* The sum of surveyed area including urban land, lakes, water channel and rivers are 138,824 acres.

FIG. 3B-12 SOUTH NAWIN IRRIGATION PROJECT AREA



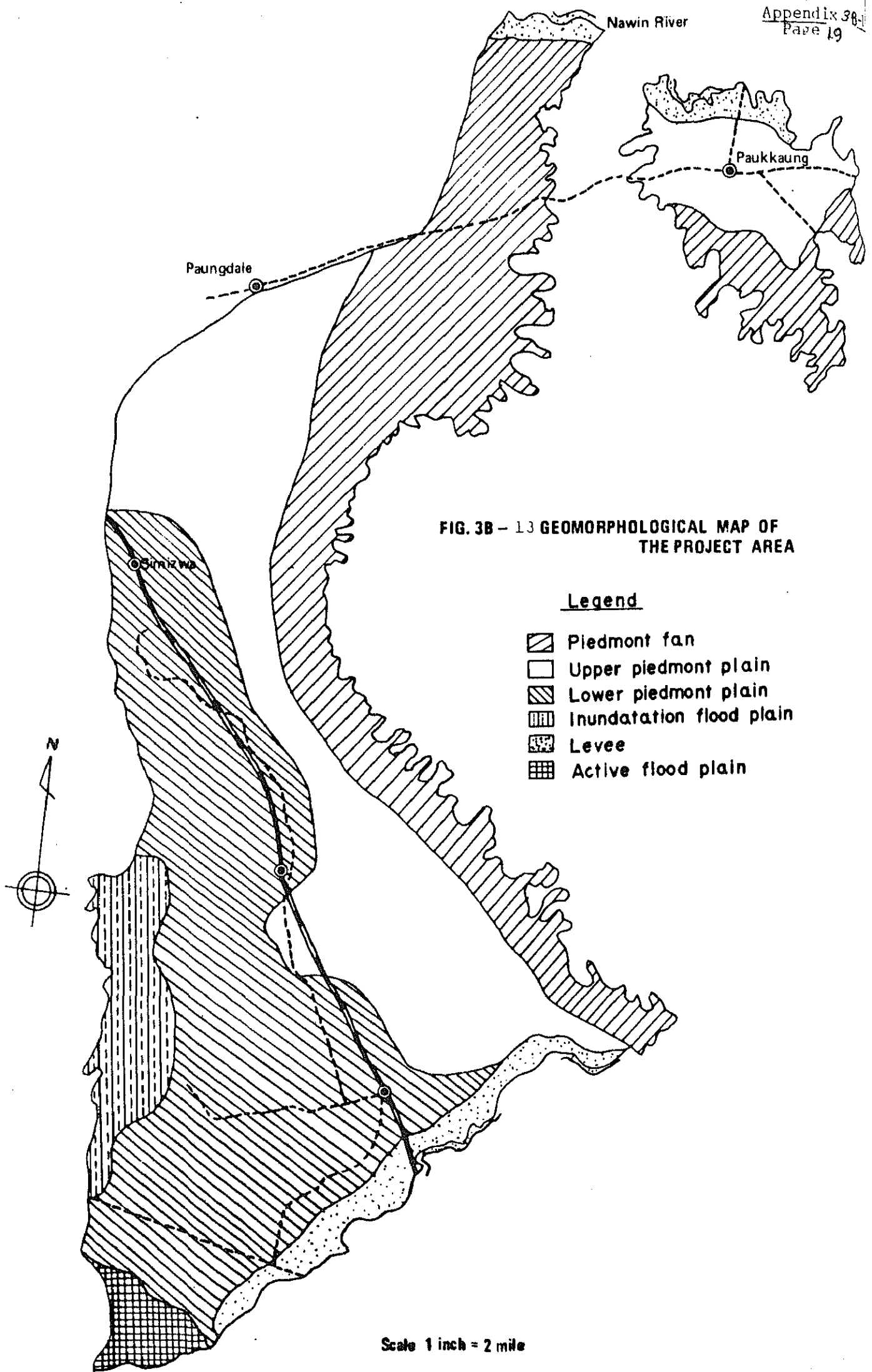


FIG. 3B - 13 GEOMORPHOLOGICAL MAP OF THE PROJECT AREA

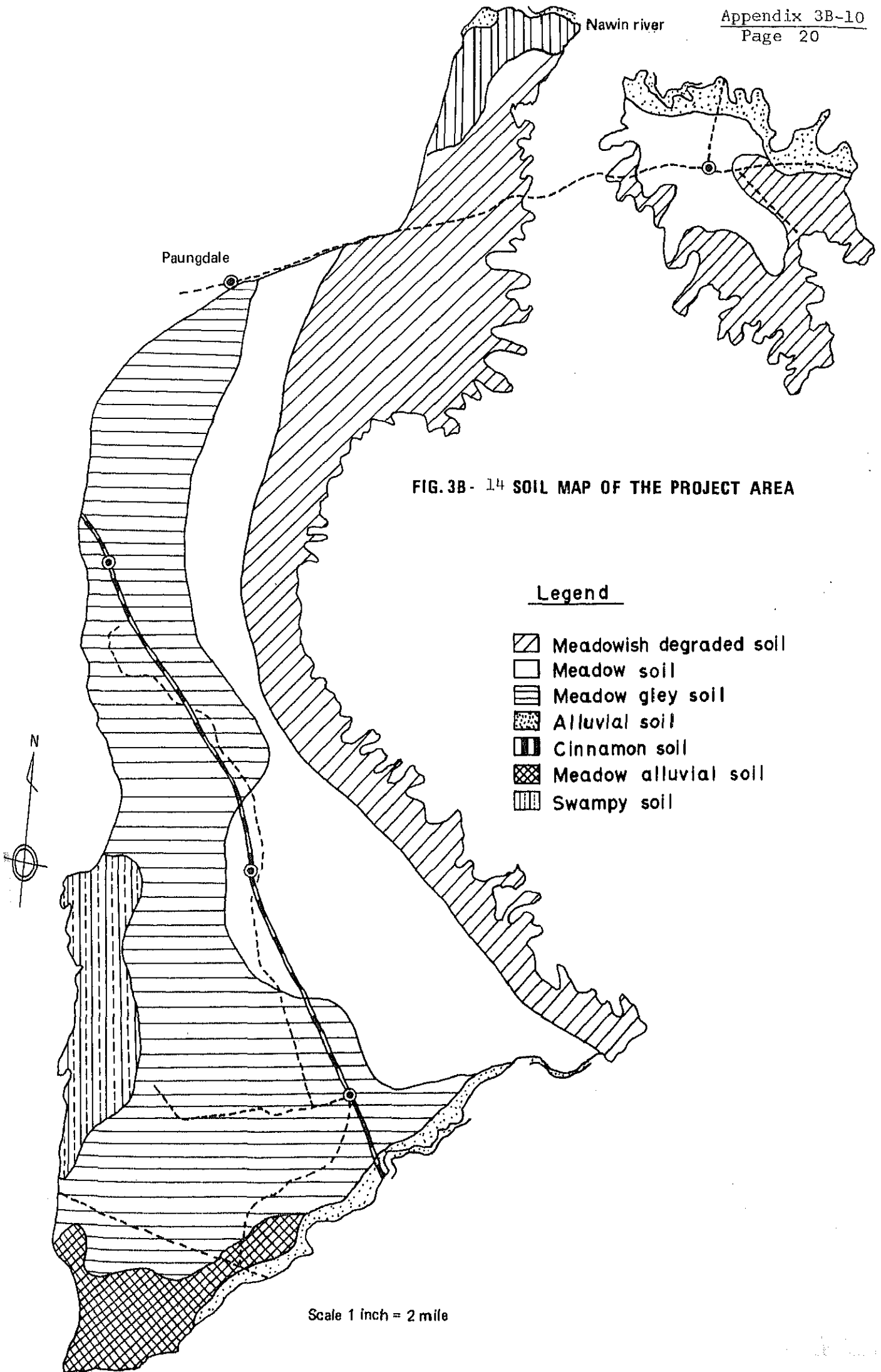







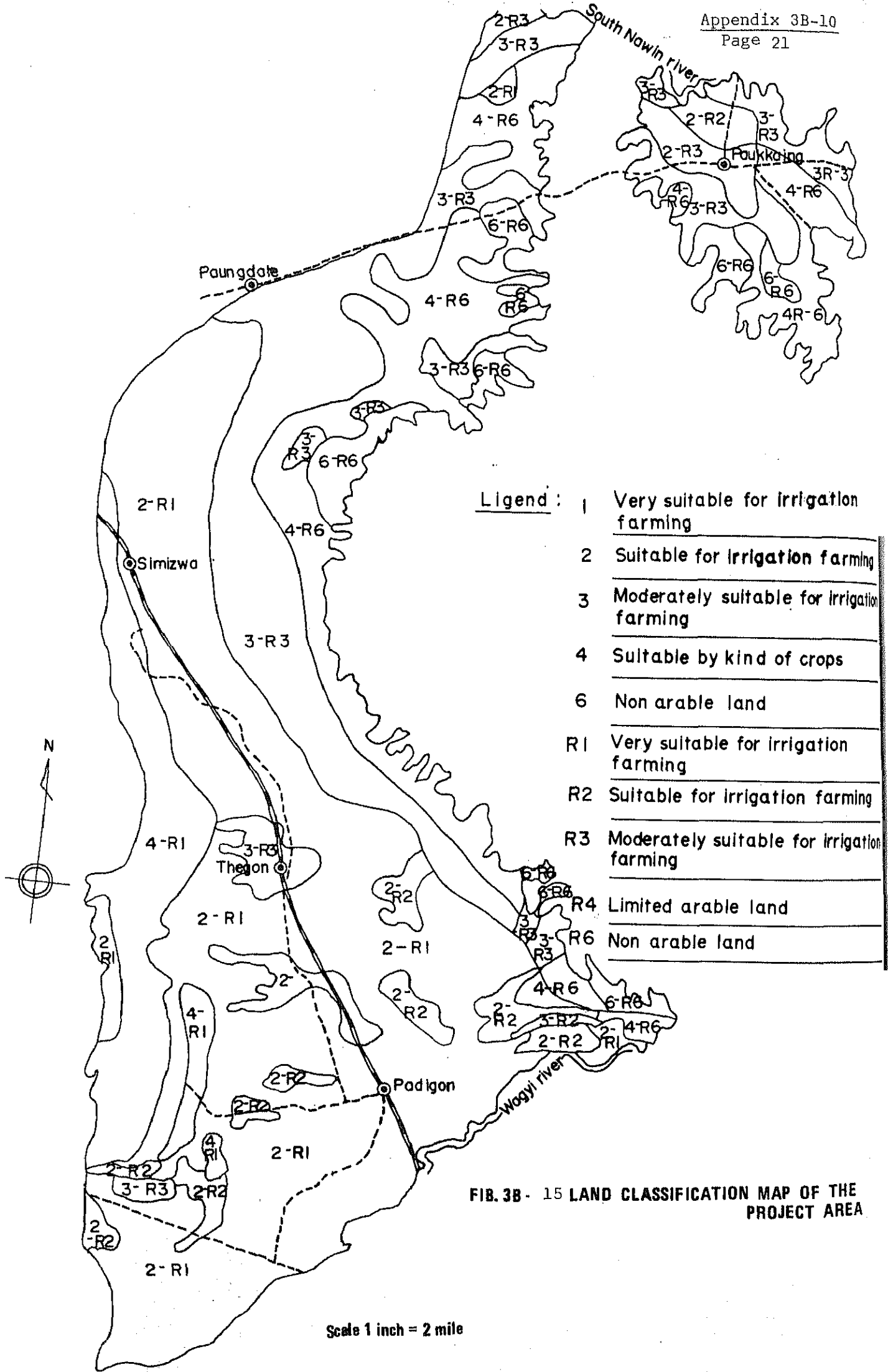


FIG. 3B- 14 SOIL MAP OF THE PROJECT AREA

Legend

-  Meadowish degraded soil
-  Meadow soil
-  Meadow gey soil
-  Alluvial soil
-  Cinnamon soil
-  Meadow alluvial soil
-  Swampy soil

Scale 1 inch = 2 mile

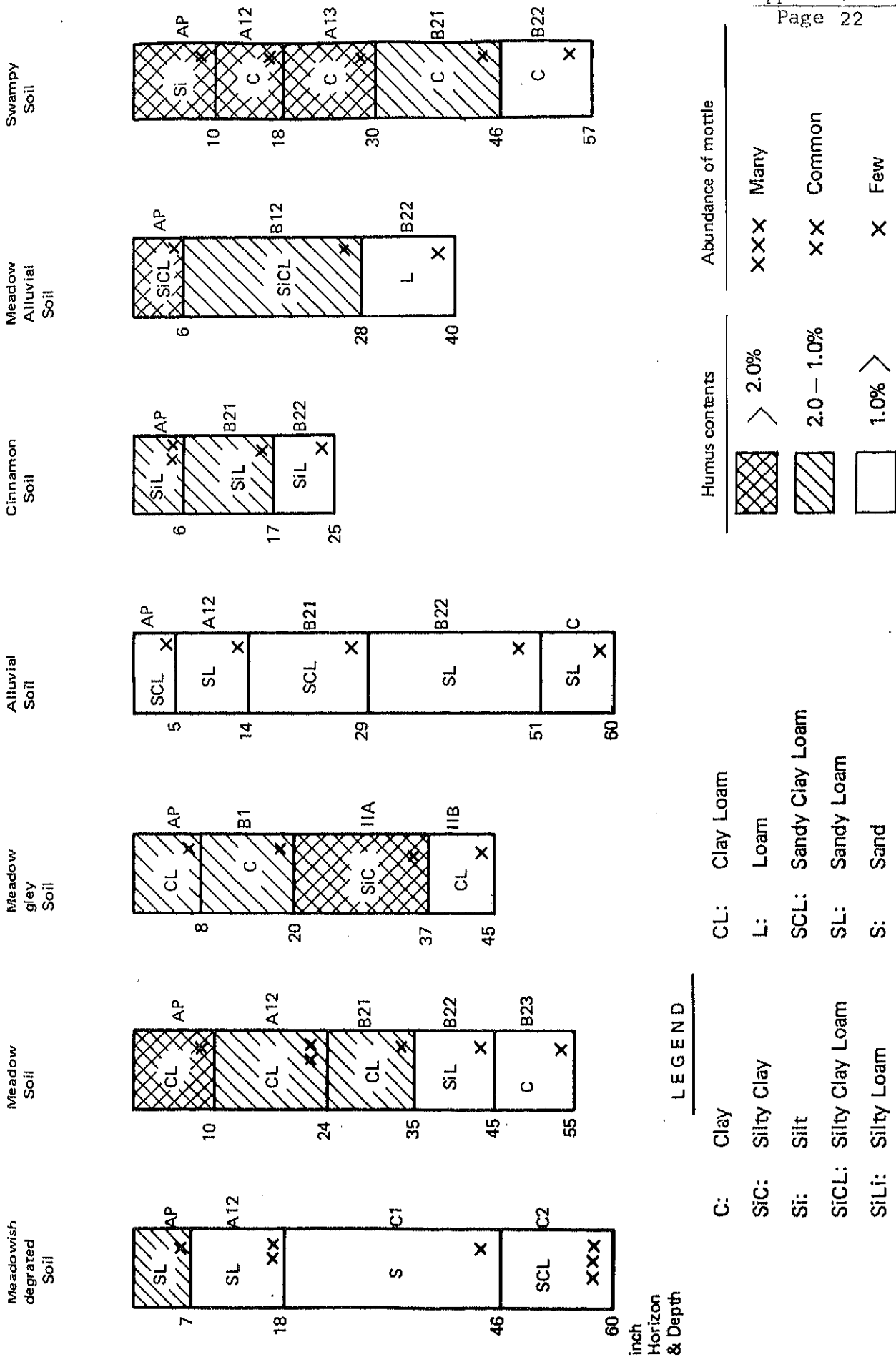


Legend :

1	Very suitable for irrigation farming
2	Suitable for irrigation farming
3	Moderately suitable for irrigation farming
4	Suitable by kind of crops
6	Non arable land
R1	Very suitable for irrigation farming
R2	Suitable for irrigation farming
R3	Moderately suitable for irrigation farming
R4	Limited arable land
R6	Non arable land

FIG. 3B- 15 LAND CLASSIFICATION MAP OF THE PROJECT AREA

Scale 1 inch = 2 mile



LEGEND

- C: Clay
- SiC: Silty Clay
- Si: Silt
- SiCL: Silty Clay Loam
- SiLi: Silty Loam
- CL: Clay Loam
- L: Loam
- SCL: Sandy Clay Loam
- SL: Sandy Loam
- S: Sand

- | | | | | | |
|----------------|--|------------|---------------------|-----|--------|
| Humus contents | | > 2.0% | Abundance of mottle | XXX | Many |
| | | 2.0 - 1.0% | | XX | Common |
| | | 1.0% | | X | Few |

FIG. 3B-16 REPRESENTATIVE SOIL PROFILES OF EACH SOIL TYPE IN THE PROJECT AREA

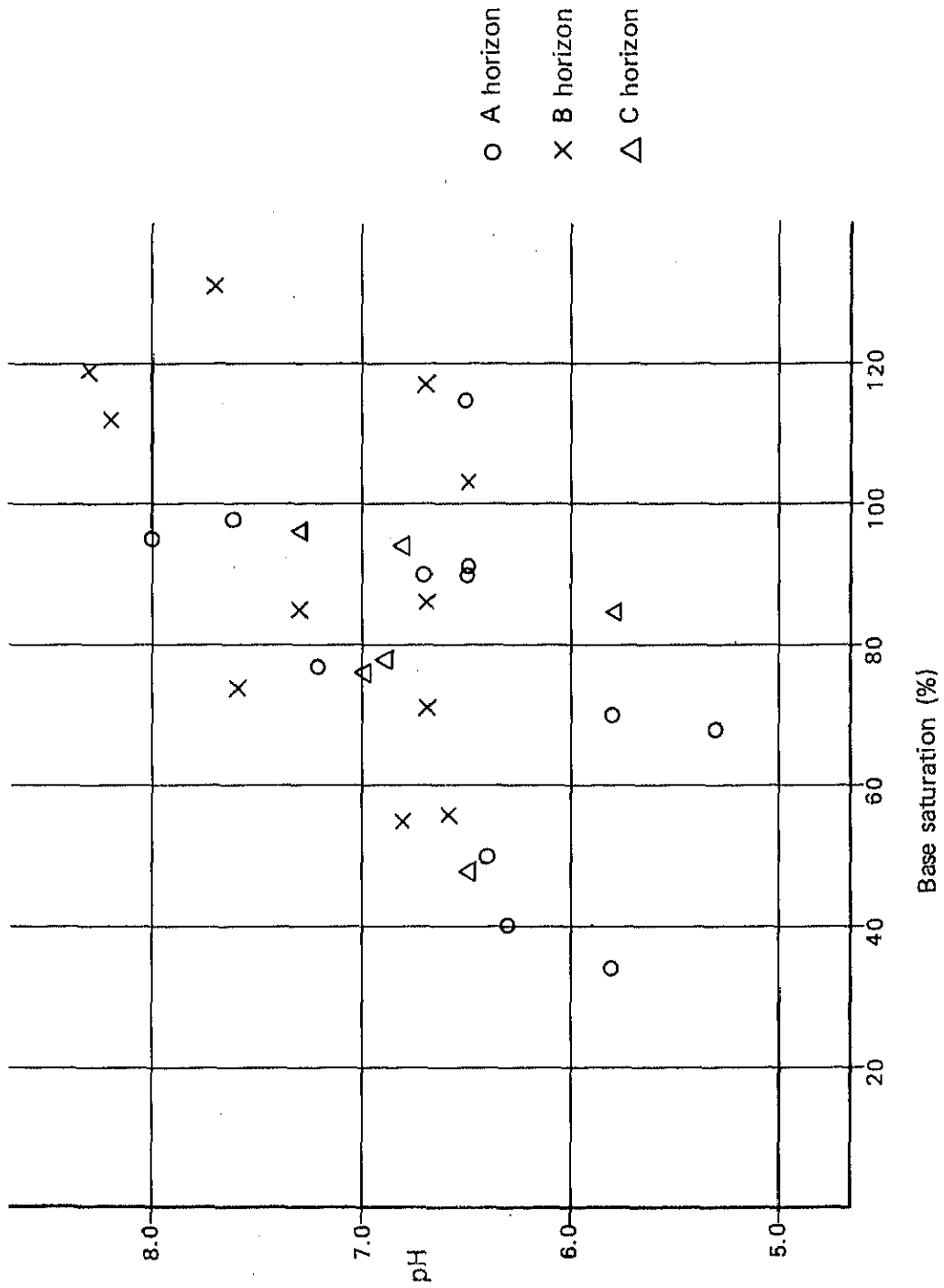


FIG. 3B - 17 RELATION OF pH VALUE AND BASE SATURATION

Table 3D-1 Land Statistics of the Project Area (Thegon) 1977/78

Name of Village Tract	Kwin No.	In the Project (%)	Gross Area	Occupied Area	Fallow Land	Net Sown Area	Cultivable Land	Water Logging	Un-Cultivable Land		Total
									Forest	Urban Area	
INPAWNGE	923	70	388	384	14	370	-	3	-	1	4
ZIGON	906A 906B 907	70 100	241 502 459	217 416 398	4 10 23	213 406 375	17 52 22	3 32 24	-	5 2 15	8 34 39
BYAMA IN	878B 878C 1001A/C 1009B 877	40 75 100 50 70	234 368 73 551 204	101 343 68 288 152	2 4 - 10 7	99 339 68 278 145	10 1 - 2 9	2 5 - 14 7	-	121 18 5 246 36	123 23 5 260 43
PAIT CHIEN GON	887	100	702	656	12	644	5	8	-	33	41
YON BIN TAT	880 889 890A 890B 879	100 100 100 100 90	773 588 357 345 598	697 532 306 288 471	5 10 20 5 11	693 522 286 283 460	9 - 17 21 11	8 18 15 15 24	-	59 38 19 21 93	67 56 34 36 117
ZEE OAK	1003 1004	100 40	618 291	571 192	2 12	569 161	26 12	19 2	-	2 85	21 86
THA BYE HLA	883B 994A 1002 1000 1001B 999	100 100 100 100 100 100	156 238 448 608 336 426	147 231 429 565 324 407	- - - - - -	147 231 429 565 324 407	1 1 2 2 1 -	8 4 16 13 6 6	-	- 2 1 18 5 13	8 6 17 41 11 19
NYAUNG WUN	992 993 993A 994B	100 100 100 100	543 513 529 389	504 496 322 383	- - - -	504 496 322 383	4 - 17 -	16 8 43 1	-	19 9 147 5	35 17 190 6
THA PHANG CHO	882A 884A 888A 889B 955A	100 100 100 100 100	320 672 373 472 440	304 631 349 453 412	4 5 6 2 -	300 626 343 453 412	2 - 13 2 -	- 15 2 - 5	-	14 26 9 17 23	14 41 11 17 28
KANT LANTGON	878D 881 882B 883A 884B 1001A/W	100 100 100 100 100 100	530 514 556 584 147 864	503 494 538 543 146 831	4 1 1 1 - 13	499 493 537 542 146 818	5 7 6 1 - 2	6 7 4 5 - 10	-	16 6 8 35 1 21	22 13 12 40 1 31

Name of Village Tract	Kwin No.	In the Project (%)	Gross Area	Occupied Area	Fallow Land	Net Sown Area	Cultivable Land	Un-Cultivable Land			Total
								Water Logging	Forest	Upland Area	
MYOMA I	30	100	133	75	38	37	-	-	-	58	58
MYOMA II	885A	100	134	129	-	129	-	-	-	5	5
	886B	100	301	266	2	264	-	-	-	33	35
	886A	100	39	32	1	31	-	-	-	6	7
MYOMA III	917	100	544	514	4	510	-	-	-	23	30
MYOMA IV	885B	100	305	295	-	295	-	-	-	10	10
	885C	100	281	236	-	236	4	-	-	41	41
	918	100	981	925	1	924	-	-	13	43	56
YWAMA	953	100	657	620	2	618	-	-	-	22	37
	954	100	588	532	1	531	-	-	-	56	56
OAT SWE	919	100	955	916	-	916	-	-	17	22	39
OAT PHO	920	80	693	660	-	660	2	-	-	31	31
	949	50	417	397	2	395	2	-	-	18	18
	950	100	268	254	-	254	3	-	-	11	11
LAIN DAN	952	100	590	553	1	552	-	-	-	37	37
	956	100	761	720	2	718	-	-	-	41	41
ZA LAE	957A	100	542	508	1	507	-	-	-	36	34
	960A	100	216	196	-	196	-	-	-	20	20
	951	100	517	482	4	478	1	-	-	34	34
	997	100	704	611	2	609	1	-	-	92	92
PADIGON	990	100	703	648	-	648	-	-	1	54	55
	991	100	641	601	-	601	-	-	1	39	40
	991A	100	359	300	-	300	-	-	7	52	59
	995A	100	351	330	-	329	-	-	-	21	21
	995B	100	470	448	-	448	-	-	7	15	22
KAN NA SINT	988	100	938	884	8	876	-	-	18	36	54
	989A	100	230	214	-	214	-	-	-	16	16
	997A	100	433	416	-	416	-	-	6	11	17
LAUNG GYI	984A	100	363	354	-	354	-	-	2	7	9
	985	100	971	755	-	755	4	-	5	27	32
	986A	100	515	478	-	478	8	-	-	29	29
	989B	100	433	424	-	424	-	-	1	8	9
YWA THIT	977B	100	620	582	-	582	-	-	-	38	38
IN MA	965A	20	118	110	2	108	6	-	-	2	2
	966	100	678	606	1	605	41	-	20	11	31

Name of Village Tract	Kwin No.	In the Project (%)	Gross Area	Occupied Area	Fallow Land	Net Sown Area	Cultivable Land	Un-Cultivable Land			Total
								Water Logging	Forest	Urban Area	
GYOBIN THA	980	100	365	349	-	349	-	7	-	9	16
	981	100	387	343	15	328	4	10	-	30	40
KYWE GAUNG	967	100	123	104	-	104	-	19	-	-	19
	973A	100	707	686	82	604	-	21	-	-	21
	973B	100	641	617	2	615	-	9	-	15	24
	973C	100	597	578	55	523	-	19	-	-	19
	974	100	799	786	2	784	1	3	-	9	12
	975A	100	435	417	1	416	-	1	-	17	18
	978A	100	511	481	1	480	3	1	-	26	27
	978B	100	494	474	1	473	2	2	-	16	18
	978C	100	498	476	2	474	1	5	-	16	21
	979	100	491	448	1	447	-	5	-	38	43
YINTLAKHAY	983A	100	574	373	6	367	1	28	-	172	200
	983B	100	665	623	5	618	-	22	-	20	42
	984B	100	275	267	5	262	2	-	-	6	6
	984C	100	244	243	-	243	-	1	-	-	1
SHINHEWE	780A	100	89	75	4	71	5	-	-	9	9
	779	100	185	175	5	170	-	-	-	10	10
KWE TAT	779A	100	232	205	5	200	8	-	-	19	19
	780B	100	496	437	30	407	40	-	-	19	19
	783A	100	173	158	8	150	-	-	-	15	15
	783B	100	154	134	4	130	13	4	-	3	7
	784	60	360	164	20	144	101	4	-	91	95
	785	50	178	-	-	-	1	-	-	-	177
NWEKANK	786	100	366	225	12	213	111	-	-	30	30
	904	70	489	377	8	369	-	15	-	98	113
	909	100	534	597	7	590	-	-	-	37	37
	913	100	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	914A	100	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
KYAUNG GON	905	50	503	199	14	185	32	26	-	246	272
	908	100	731	670	7	663	29	16	-	16	32
NGET TAWNEE	959	50	842	722	46	676	-	72	-	48	120
	961A	100	420	413	-	413	-	-	-	7	7
	961B	100	445	427	-	427	-	3	-	15	18
	963	40	463	337	24	313	38	60	-	28	88
LATPANLONE HLA	957B	100	465	457	3	454	-	2	-	6	8
	958	60	1,049	815	40	775	65	121	-	48	169
	960B	100	321	314	2	312	-	-	-	7	7
LINLAE	955	100	573	518	-	518	-	28	-	27	55
	996	100	413	378	1	377	-	7	-	28	35
	998	100	588	553	-	553	-	15	-	20	35

(Paukkuang Basin)

Name of Village Tract	Kwin No.	In the Project (%)	Gross Area	Occupied Area	Fallow Land	Net Sown Area	Cultivable Land	Un-Cultivable Land				
								Water Logging	Forest	Urban Area	Total	
YWA DAUNG	700B	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	700A		188	150	2	148	-	-	-	-	-	38
	701		343	256	1	255	5	-	-	-	-	82
	697A		146	111	-	111	9	-	-	-	-	26
YATHIT	698		231	141	3	138	-	-	-	-	-	90
	699B		1,078	730	20	710	-	-	-	-	-	348
WET TOE	699		774	611	-	611	33	-	-	-	-	130
TOTAL			2,760	1,999	26	1,973	47	-	-	-	-	714
Net Area of Paukkuang Basin			1,780	1,999 + 47 = 2,046		1,560						220

Source: Land Record Office at Paukkuang, Thegon and Frone.

Table 3D-2 Land Use in the Project Area (Thegon)

Name of V.T.	Kwin No.	In the Project (%)	Occupied Area						Total	Forest	Cultivable		Total
			Le (Paddy Land)	Kaing (Seasonal Aerial Land)	Ya (Upland Field)	Uyin (Garden)	Waste	Non-cultivable					
INPAWNGE	923	70	380	-	-	-	-	380	-	-	8	388	
ZIGON	908A	70	209	-	-	1	-	210	-	18	6	234	
	906B	100	406	-	-	-	-	406	-	62	34	502	
	907	100	465	2	-	8	-	475	-	-	130	605	
BYAMA IN	878B	40	86	9	-	-	-	95	-	-	135	230	
	878C	75	307	4	-	-	-	311	-	7	49	368	
	1001A/E	100	67	-	3	-	-	70	-	-	3	73	
	1009B	50	276	-	14	-	-	290	-	2	259	551	
	877	100	213	-	33	-	-	246	-	11	35	292	
DAIT CHIN GON	887	100	609	-	-	11	-	620	-	5	78	703	
YON BIN TAT	880	100	675	-	10	-	-	685	-	-	47	732	
	889	100	516	-	7	5	-	528	-	2	58	588	
	890A	100	248	-	-	-	-	248	-	18	91	357	
	890B	100	274	-	3	-	-	277	-	3	60	340	
	879	90	461	-	41	5	-	507	-	-	95	602	
ZEE OAK	1003	100	559	-	-	7	-	566	-	13	31	610	
	1004	40	185	-	-	5	-	190	-	8	92	290	
THA BYE HLE	883B	100	146	-	1	-	-	147	-	-	9	156	
	994A	100	231	-	-	-	-	231	-	1	6	238	
	1002	100	350	-	3	11	-	364	-	15	29	408	
	1000	100	507	-	27	17	-	551	-	2	55	608	
	1001B	100	299	-	10	10	-	319	-	1	16	336	
	999	100	390	-	18	77	-	N.A.	-	1	57	N.A.	
	992	100	442	33	-	15	-	490	-	-	23	513	
	993A	100	232	-	57	45	-	334	-	-	196	530	
	994B	100	314	-	12	43	-	369	-	1	14	384	
THA PHAN CHO	882A	100	293	-	-	5	-	298	-	-	22	320	
	884A	100	569	-	-	30	-	599	-	3	70	672	
	888A	100	349	-	-	4	-	353	-	9	11	373	
	888B	100	429	-	-	13	-	442	-	1	29	472	
	955A	100	383	-	-	13	-	396	-	1	43	440	
KANT LANTGON	878D	100	460	-	-	34	-	494	-	3	33	530	
	881	100	494	-	-	-	-	494	-	2	18	514	
	882B	100	535	-	-	3	-	538	-	-	17	555	
	883A	100	453	-	-	56	-	509	-	-	75	584	
	884B	100	149	-	-	-	-	149	-	-	1	150	
	1001A/W	100	778	-	-	37	-	815	-	-	49	864	

Name of V.T.	Kwin No.	In the Project (%)	Occupied Area					Total	Forest	Cultivable Waste	Non-cultivable	Total
			Le (Paddy Land)	Kaing (Seasonal Aerial Land)	Ya (Upland Field)	Uyin (Garden)	Total					
MYOMA I	30	100	4	-	-	-	4	-	-	128	132	
MYOMA II	885A 886B 886A	100	26	-	-	1	N.A. N.A. 27	-	-	12	N.A. N.A. 39	
MYOMA III	917	100	475	-	-	11	486	-	-	58	544	
MYOMA IV	885B 885C 918	100	860	-	-	4	N.A. N.A. 864	-	9	108	N.A. N.A. 981	
YAWANA	953 954	100 100	597 502	-	-	8 15	605 517	-	2 22	50 48	657 587	
OAT SWE	919	100	892	-	-	10	904	-	3	51	958	
OAT PHO	920 949 950	80 50 100	660 397 254	-	-	-	660 397 254	-	2 2 3	31 18 11	693 417 268	
LAIN DAN	952 956	100 100	536 679	-	-	15 30	551 709	-	2 1	37 51	590 761	
ZALAE	957A 960A 951 997	100 100 100 100	508 194 481 511	-	-	-	508 196 482 511	-	-	34 20 34 92	542 216 517 704	
PADIGON	990 991 991A 995A 995B	100 100 100 100 100	521 400 254 225 282	-	17 65 7	12 16 5 15 15	550 481 266 305 397	-	-	153 160 93 46 73	703 641 359 351 470	
YAT THA	964 975 975A	90 100 100	835 161 555	-	-	5 1 13	840 162 568	3	14 1 13	27 6 42	884 169 682	
KAN NA SINT	987A 988 989A 997A	100 100 100 100	356 814 212 356	-	-	2 32 1 17	358 847 213 374	-	1	3	362 938 230 433	
LAUNG GYI	984A 985 985 986A 787B 989B	100 100 100 100 100 100	331 630 622 279 38 420	-	-	16 87 47 175 7 4	347 717 669 454 45 424	-	1 1 1 7 - -	15 73 64 54 8 9	363 791 734 515 53 433	

Name of V.T.	Kwin No.	In the Project (%)	Occupied Area						Total Forest	Cultivable Waste	Non-cultivable	Total
			Le (Paddy Land)	Kaing (Seasonal Aerial Land)	Ya (Upland Field)	Uyin (Garden)	Total	Forest				
YMA THIT	976A	100	726	-	-	29	755	-	-	28	783	
	977A	100	498	-	-	13	511	-	-	14	530	
	977B	100	502	-	-	63	565	-	-	55	620	
IN MA	965A	20	109	-	-	-	109	-	4	4	118	
	966	100	578	-	-	-	578	-	2	98	678	
GYOBIN THA	960						N.A.				N.A.	
	981						N.A.				N.A.	
	981A						N.A.				N.A.	
KYWE GAUNG	967	100	103	-	-	-	103	-	3	17	123	
	973A	100	684	-	-	-	684	-	-	23	707	
	973B	100	615	-	-	-	615	-	2	25	642	
	973C	100	576	-	1	1	577	3	3	17	597	
	974	100	766	-	1	16	783	-	2	14	799	
	975A	100	380	-	-	20	400	-	-	35	435	
	976R	100	253	-	-	34	287	-	-	28	315	
	978A	100	416	-	13	30	459	-	3	49	511	
	978B	100	447	-	3	12	462	-	-	32	494	
	978C	100	426	-	1	27	454	-	1	43	498	
	979	100	415	-	-	14	429	-	-	62	491	
	YINTAKHAW	963A						N.A.				N.A.
		983B	100	449	37	64	23	573	-	-	92	665
		984B	100	266	-	-	-	266	-	2	7	275
984C	100	241	-	2	-	243	-	-	1	244		
SHINMEZNE	779						N.A.				N.A.	
	779A		479	-	-	-	479	-	39	74	592	
	780A	100	69	-	-	-	69	-	-	15	84	
KWE TAT	780B	100	438	-	-	-	438	-	40	18	496	
	783A	100	382	-	-	17	399	1	2	100	502	
	783B	100	334	-	-	-	334	-	20	50	404	
	784	60	162	-	-	-	162	-	106	98	366	
	785	50	-	-	-	-	-	-	-	178	178	
	786	100	374	-	-	-	374	-	166	26	566	
NWEGANK	904	70	371	-	3	-	374	-	31	84	489	
	909	100	853	-	1	2	856	-	35	52	943	
	913						N.A.				N.A.	
	914A						N.A.				N.A.	
NYAUNG GON	905	50	189	-	-	-	189	-	4	309	502	
	908	100	658	-	-	-	658	-	37	36	731	
NGET TAWKEE	959	50	710	-	-	2	712	-	-	129	841	
	961A	100	405	-	-	6	411	-	-	9	420	
	961B	100	408	-	-	9	418	-	1	26	445	
	962	100	901	-	1	19	920	-	5	89	1,014	
	963	40	335	-	-	-	335	-	38	90	463	

Name of V.T.	Kwin No.	In the Project (%)	Occupied Area					Total	Forest	Cultivable Waste	Non-cultivable	Total
			Le (Paddy Land)	Kaing (Seasonal Aerial Land)	Ya (Upland Field)	Uyin (Garden)	Total					
LATPANLONE HILA	957B	100	431	-	-	6	437	-	-	14	451	
	958	60	869	-	-	-	869	-	5	175	1,049	
	960B	100	296	-	-	-	296	-	-	25	321	
LINLAE	955	100	472	-	17	6	495	-	-	76	571	
	996	100	270	-	20	40	330	-	-	82	412	
	998	100	490	-	21	25	536	-	-	52	588	
KAMUNCHON	720A						N.A.				N.A.	
	720B						N.A.				N.A.	
	721						N.A.				N.A.	
	721A						N.A.				N.A.	
	826B						N.A.				N.A.	
	825B						N.A.				N.A.	
	846						N.A.				N.A.	
	826A						N.A.				N.A.	
	825A						N.A.				N.A.	
	824A						N.A.				N.A.	
	817B						N.A.				N.A.	
	847A						N.A.				N.A.	
	822	100	385	-	1	9	395	-	-	-	395	
	823	100	380	-	3	23	406	-	-	-	406	
821	100	265	-	1	7	273	-	1	-	274		
CHAMNG GAUNG	817A						N.A.				N.A.	
	818						N.A.				N.A.	
THABYE TAUNG	806B											
	814A	100	1,839	3	-	28	1,870	-	34	-	1,904	
	815A											
	816											
GYOBON	850	100	287	-	-	16	303	-	127	-	430	
	849						N.A.				N.A.	
	814B						N.A.				N.A.	
	815B						N.A.				N.A.	
	850A	80	91	-	-	-	91	-	-	-	91	
851	40	22	-	-	5	27	-	-	-	27		
NGAKUINE	719A						N.A.				N.A.	
INNGA KWA	719B						N.A.				N.A.	
	718						N.A.				N.A.	
THIT YOWN PYAN	827	30	93	-	-	93	-	-	102	-	195	

(Panakkuang)

(Proms)

Name of V.I.	Kwin No.	Occupied Area					Total	Forest	Cultivable Waste	Non-cultivable	Total
		(%) In the Project	Le (Paddy Land)	Kaing (Seasonal Aerial Land)	Ya (Upland Field)	Uyin (Garden)					
DAKTAW (East)	789						N.A.			N.A.	
	790						N.A.			N.A.	
	791						N.A.			N.A.	
	794						N.A.			N.A.	

Source: Land Record Office at Paukuang, Thegon and Proms.

Table 3D-3 Size of Holdings

<u>Name of V.T.</u>	<u>Less than 2 ac</u>	<u>2 - 5</u>	<u>5 - 10</u>	<u>Over 10 ac</u>	<u>Total</u>	<u>Remarks</u>
INPAWNGE	N.A.	N.A.	N.A.	N.A.	N.A.	Thegon
ZIGON	21	225	175	40	461	"
BYAMA IN	12	115	155	21	303	"
DAIT CHIN GON	N.A.	N.A.	N.A.	N.A.	N.A.	"
YON BIN TAT	22	98	119	35	274	"
ZEE OAK	10	103	62	19	194	"
THA BYE HLE	17	145	173	47	382	"
NYAUNG WUN	10	102	62	19	193	"
THA PHAN CHO	17	199	217	43	476	"
KANT LANTGON	18	294	197	20	529	"
MYOMA I - IV	21	225	175	40	461	"
YWAMA	11	53	73	7	144	"
OAT SWE	11	41	19	47	118	"
OAT PHO	N.A.	N.A.	N.A.	N.A.	N.A.	"
LAIN DAN	8	40	77	47	172	"
ZA LAE	N.A.	N.A.	N.A.	N.A.	N.A.	"
PADIGON	564	248	77	5	894	"
KANNASINT	95	143	148	10	396	" *
YAT THA	8	79	131	3	221	" *
LAUNG GYI	48	294	203	17	562	" *
YWA THIT	22	158	97	7	284	" *
IN MA	43	81	93	22	239	"
GYOBIN THA	N.A.	N.A.	N.A.	N.A.	N.A.	" *
KYWE GAUNG	126	305	265	54	750	" *
YINTIAKMHAW	30	70	90	26	216	"
SHINMEZWE	39	85	165	66	355	"
KWE TAT	25	113	114	12	264	"
NWEGAWK	44	78	111	92	325	"
NYAUNG GON	16	159	174	36	385	"
NGET TAWMEE	45	307	237	63	652	" *
LATPANLONE HLA	17	63	242	52	374	"
LIN LAE	84	88	105	18	295	"
Sub-total	1,384	3,911	3,756	868	9,919	

<u>Name of V.T.</u>	<u>Less than 2 ac</u>	<u>2 - 5</u>	<u>5 - 10</u>	<u>Over 10 ac</u>	<u>Total</u>	<u>Remarks</u>
KAMUNCHON	80	149	142	87	458	Paukkuang
CHAWNG GAUNG	10	52	65	57	184	"
THABYE TAUNG	23	75	102	70	270	"
GYOBIN	54	68	53	26	201	"
NGAKUINE	N.A.	N.A.	N.A.	N.A.	N.A.	"
INNGA KWA	54	109	83	8	254	"
THITYOWNPYAN	N.A.	N.A.	N.A.	N.A.	N.A.	"
Sub-total	221	453	445	248	1,367	
YWA DAUNG	N.A.	N.A.	N.A.	N.A.	N.A.	Paukkuang Basin
YATTHIT	N.A.	N.A.	N.A.	N.A.	N.A.	"
WET TOE	N.A.	N.A.	N.A.	N.A.	N.A.	"
PAUKTAW (East)	80	158	275	124	637	Prome
Total	1,685	4,522	4,476	1,240	11,923	

* Village Tracts concerned in the Pilot Scheme Area

Extraction of the Village Tracts concerning the Pilot Scheme Area

KANNASINT	95	143	148	10	396
YAT THA	8	79	131	3	221
LAUNG GYI	48	294	203	17	562
YWA THIT	22	158	97	7	284
GYOBIN THA	N.A.	N.A.	N.A.	N.A.	N.A.
KYWE GAUNG	126	305	265	54	750
NGET TAWMEE	45	307	237	63	652
Total	344	1,286	1,081	154	2,865
(%)	(12.0)	(44.9)	(37.7)	(5.4)	(100.0)

Source: Land Record Office of Paukkuang, Thegon and Prome.

Table 3D-4 Partially Irrigated Area (1978/79)

Paukkaung Township			
<u>Township</u>	<u>Creeks Small se'</u>	<u>Ponds</u>	<u>Remarks</u>
1. Paunkkaung	5,291 195*	1,872	Only Paddy Crop is sown under irrigation in Paukkaung township.
			* by Pumping
Total	5,486acres	1,872acres	<u>Grand Total = 7,368 acres</u>

Paunkkaung		
<u>Name of Irrigation Resources</u>	<u>Areas Irrigated (acres)</u>	<u>Remarks</u>
1. CHIN-LE-GYI-SE"	610	} Governments
2. YE-PYU-SE	971	
3. KYAN YWA-SE	1,419	
4. GYO-BIN-WINE-SE	1,287	
5. OTHERS	3,071	Private
Total	<u>7,358</u>	

Source: Paukuang AC Office.

Table 3D-5 Partially Irrigated Area (1976/77)

Thegon Township			
Sr. No.	Name of Irrigation Resources	Area Irrigated (acres)	Remarks
1.	Gaukpyote Se'	1,431	(Se-means big ponds with water outlet)
2.	Laindan Se'	2,359	
3.	Bo-Le-Swe Se	1,439	
4.	Tamabin Se	1,567	
5.	Wegyi drainage canal	847	(Pumping)
6.	Thayettaw chaung	642	
7.	Kya-the chaung	3,134	
8.	Thegongyi chaung		
9.	Win-Loo Se (upper)	2,423	
10.	Nyo mabin Se	1,808	
11.	Byama Inn (Lake)	409	Pumping
12.	Win-100 Se (Lower)	104	
13.	Thayet Kaime Gyo Se	1,258	
14.	Hngat Taw Hmi Se	215	
15.	Mye'-dwin-tu Se	2,041	
16.	The'-se'-chaung	977	
17.	Myit-ma-Kha chaung	3,075	
	Total	<u>23,784</u>	

Irrigated Areas According to Crops

No.	Crops	Irrigated Area (acres)
1.	Paddy	20,503
2.	Pulses	1,500
3.	Cotton	75
4.	Jute	21
5.	Groundnut	1,000
6.	Others	685
	Total	<u>23,784</u>

Source: Thegon AC Office.

Table 3D-6 Average Yield Tendency

Paukkaung Township

1978 - 79

1977 - 78

1976 - 77

1975 - 76

1974 - 75

No.	Crops	Measurement	1974 - 75			1975 - 76			1976 - 77			1977 - 78			1978 - 79		
			Sown (Acres)	Production	Yield/acre	Sown (Acres)	Production	Yield/acre	Sown (Acres)	Production	Yield/acre	Sown (Acres)	Production	Yield/acre	Sown (Acres)	Production	Yield/acre
1.	Paddy	Basket	43,688	1,681,243	38.5	44,030	1,690,204	38.4	43,890	1,731,960	39.5	41,020	1,535,128	37.4	42,663	1,743,803	40.9
2.	Maize	No. of Shoots'	797	7,194,589	9,027	683	5,601,460	9,665	776	8,031,260	10,350	861	9,167,201	10,647	888	10,290,186	11,588
3.	Groundnut(Rain.f.)	Baskets	117	2,354	20.1	191	3,900	20.4	221	4,667	21.1	490	2,196	4.5	588	12,965	22.0
4.	Groundnut(Winter)	"	325	6,468	19.9	503	10,456	20.8	629	15,800	25.1	1,022	28,961	28.3	1,267	47,139	37.2
5.	Early sesmum	"	8,576	23,730	2.8	8,207	33,936	4.1	8,209	32,441	4.0	9,758	41,437	4.2	11,567	52,903	4.6
6.	Late sesmum	"	8,621	28,848	3.3	8,256	30,488	3.7	8,261	32,609	3.9	9,970	42,059	4.2	11,953	54,119	4.5
7.	Sunflower	"	-	-	-	-	-	-	7	57	8.1	108	885	8.2	-	-	-
8.	Cotton (L.S.C.)	Viss	-	-	-	25	1,043	41.7	8	51	6.4	10	753	75.3	-	-	-
9.	Cotton (Burmese)	"	5,415	447,550	82.7	5,250	436,905	83.2	5,294	431,038	81.4	6,442	537,907	83.5	6,580	464,605	70.6
10.	Jute	"	-	-	-	-	-	-	-	-	-	-	-	-	77	4,510	79.1
11.	Bocade (Beans)	Baskets	6	36	6.0	6	37	6.0	3	19	6.3	-	-	-	-	-	-
12.	Soy Beans	"	468	2,395	5.0	358	1,862	5.2	131	603	4.6	225	1,568	6.9	1,940	9,428	4.9
13.	Lab-Lab. Bean	"	1,568	10,709	6.4	1,438	9,346	6.5	1,315	8,705	6.6	902	5,846	6.5	1,632	9,621	6.0
14.	Pe Kauk (Black-seeds)	"	1,952	9,311	4.8	1,988	9,602	4.8	1,953	9,472	4.8	439	9,713	22.1	-	-	-
15.	Chilly	Viss	10	979	97.9	10	981	98.1	6	589	98.2	2	196	98.0	7	685	97.9
16.	Tobacco (Burmese dry leaves)	"	45	3,308	67.5	38	2,588	68.1	40	2,728	68.2	29	5,075	175.0	38	2,565	67.5
17.	Sugarcane	tons	1,562	8,192	5.2	2,124	11,163	5.3	735	5,990	8.1	303	1,243	4.1	1,449	6,979	4.8
18.	Malbery (Leaves)	Viss	34	15,385	452.5	32	14,480	452.5	32	14,464	452.0	32	450	14.1	40	13,100	452.5
19.	Vegetables	-	460	-	-	475	-	-	619	-	-	408	-	-	-	-	-
20.	Bamana	nos. bunches	96	19,008	198.0	94	18,706	199.0	94	18,800	200.0	92	18,400	200.0	96	19,104	199.0
21.	Coconut	nos.	6	8,520	1,420.0	6	8,310	1,385.0	6	8,340	1,390.0	6	8,346	1,391.0	6	8,400	1,400.0
22.	Toddy (Jegry) (Sugar)	Viss	118	23,280	197.3	118	25,043	212.2	118	25,630	217.2	118	25,632	217.2	118	23,200	196.6

Source: Paukkaung AC Office.

Table 3D-7 Average Yield Tendency

Thegon Township

(Unit: as same as Table 7)

Crops	1974 - 75			1975 - 76			1976 - 77			1977 - 78			1978 - 79		
	Sown Acres	Production	Yield	Sown Acres	Production	Yield	Sown Acres	Production	Yield	Sown Acres	Production	Yield	Sown Acres	Production	Yield
1. Paddy (Total)	88,252	3,859,315	43.73	90,778	3,901,084	42.97	90,012	3,861,496	42.9	89,927	2,299,940	25.58	90,963	4,105,351	45.13
HYV	939	55,610	59.22	1,224	67,781	55.38	1,225	70,611	57.64	656	15,436	23.53	680	43,233	63.58
Local. V.	87,313	3,803,705	43.56	89,558	3,833,303	42.80	88,787	3,854,435	43.4	89,271	2,284,504	25.59	90,283	4,062,118	44.99
2. Maize (Local)	1,353	7,679,734*	5,676.08	1,374	9,564,854*	6,961.32	1,277	8,977,731*	7,030.33	1,130	8,912,243*	7,886.94	1,112	9,763,913*	8,780.50
3. Groundnut (Total)	2,371	50,987	21.50	1,922	41,281	21.48	2,027	67,769	33.43	2,986	96,465	32.31	3,451	101,781	29.49
Gr. (Rain fact)	440	8,004	18.19	472	11,561	24.71	463	11,788	25.46	841	21,722	25.83	1,144	23,400	20.45
Gr. (Winter)	1,930	42,983	22.27	1,450	29,620	20.43	1,564	55,981	35.79	2,145	74,743	34.85	2,309	78,381	33.95
4. Sesmum (total)	947	1,390	1.47	1,190	3,735	3.14	1,247	4,375	3.51	1,915	7,955	4.15	2,341	9,430	4.03
Early Sesmum	802	1,082	1.35	1,014	3,257	3.21	1,032	3,761	3.64	1,760	7,355	4.18	2,186	8,830	4.04
Late Sesmum	145	308	2.12	176	478	2.72	215	614	2.86	155	600	3.87	155	600	3.87
5. Cotton (Total)	40	2,737	68.48	65	4,743	72.97	88	6,288	71.45	143	11,372	79.52	138	11,281	81.75
Burmes Cott.	40	2,737	68.43	65	4,743	72.97	82	6,032	73.56	133	10,672	80.24	138	11,281	81.75
LSC	-	-	-	-	-	-	6	256	42.67	10	700	70.00	-	-	-
6. Jute (Rain)	97	13,580	140.00	325	59,878	184.24	277	32,645	117.85	267	50,661	189.74	619	128,139	207.01
7. Pocate Beans	198	1,037	5.24	165	843	5.11	316	1,257	3.98	322	2,630	8.17	315	1,529	4.85
8. Grams	887	8,134	9.17	850	6,971	8.20	1,093	10,385	9.50	690	8,763	12.70	1,055	6,852	6.43
9. Cow Peas	15	101	6.73	15	100	6.67	-	-	-	-	-	-	-	-	-
10. Black Seeds	-	-	-	3	18	6.00	2	9	4.50	7	33	4.71	8	34	4.25
11. Lab Lab Bean	2	8	4.00	2	8	4.00	11	50	4.55	9	46	5.11	12	61	5.08
12. Sugarcane	597	5,970	10.00	456	5,211	11.45	146	1,666	11.41	131	1,108	8.46	80	505	6.31
13. Toddy	170	26,650*	156.67	170	28,700*	168.82	170	29,400*	172.94	170	29,820*	175.41	170	29,820	175.41
14. Black Bean	-	-	-	-	-	-	6	41	6.83	37	248	7.75	52	326	6.27
15. Sunflower	-	-	-	-	-	-	8	40	5.00	50	380	7.60	221	2,664	12.05

* = Numbers of Shoots.

+ = Lot of Jeggrey (Sugar)

Source: Thegon AC Office.

Prome Township

Table 3D-8 Average Yield Tendency

Crops	Measurements (ac)	1974 - 75			1975 - 76			1976 - 77			1977 - 78			1978 - 79		
		Sown (ac)	Production	Yield	Sown (ac)	Production	Yield	Sown (ac)	Production	Yield	Sown (ac)	Production	Yield	Sown (ac)	Production	Yield
Paddy	Baskets	71,003	2,700,070	38.0	70,777	2,818,591	39.8	69,425	2,902,410	40.8	68,000	2,055,504	30.2	67,214	2,947,199	43.9
Maize	Kernels	1,019	-	-	987	-	-	977	8,962,720	-	950	8,431,445	-	808	7,276,040	-
G'nuts (Rain)	Baskets	1,994	57,399	28.8	1,778	46,744	26.3	1,774	51,401	29.0	1,122	27,805	24.8	1,636	41,473	25.4
" (Winter)	"							942	31,652	33.6	1,253	44,506	35.5	1,555	50,362	32.4
Sesame (Early)	"	3,556	10,405	2.9	3,420	10,174	3.0	3,833	11,246	2.9	4,797	21,185	4.4	6,776	23,971	3.5
" (Late)	"													136	557	4.1
Cotton (L.S.C.)	Viss	283	22,423	79.2	364	24,347	66.9	90	1,776	19.7	58	4,400	75.9	2,425	255,900	105.5
" (L.V.)	"							664	59,218	80.1	348	34,111	98.0	350	33,285	95.0
Jute	"	122	8,760		194	20,079		301	14,305		382	24,164		312	37,483	
Mape (Black)	Basket	11	49		6	26		13	59		296	910		112	446	
Bocade Bean	"	148	917		136	734		139	687		120	976		462	2,308	
Soy Bean	"	4	14		6	22		6	22		1	5		-	-	
Gram	"	30	183	6.1	51	264	5.2	56	310	5.5	45	466	10.4	65	259	4.0
Cow pea	"	11	72		12	68		6	26		-	-		-	-	
Pigeon pea	"	13	50		12	68		14	56		14	56		15	60	
Lab Lab Bean	"	2,590	13,856		2,233	10,865		3,257	13,227		2,304	1,226		1,788	9,244	
True Pea	"	1	4		-	-		-	-		-	-		-	-	
Black Seed	"	1,290	5,818		904	4,059		911	4,100		943	5,840		732	3,045	
Chilly	Viss (Wet)	58	31,222		54	26,595		62	33,613		51	28,834		54	28,782	
Tobacco (L.V.)	Viss (Dry)	4	880		4	840		4	1,000		4	800		3	600	
Sugarcane	Tons	4,132	21,514		4,199	21,814		2,211	4,354		394	2,084		269	2,270	
Bannana	Bunches	694	152,680		694	152,680		706	155,320		706	155,320		706	155,320	
Coconuts	Balls	91	159,250		91	160,160		91	160,160		91	182,000		91	182,000	
Vegetables	"	1,517	-		1,539	-		1,484	-		1,583	-		1,399	-	
Betel nuts	Viss	305	32,940		274	162,560		304	23,912		304	32,528		304	32,528	
Other pulses	Baskets	17	51		15	45		-	-		-	-		-	-	
Sunflower	"	-	-		-	-		15	218	14.5	158	1,986	12.6	108	1,130	10.5
Toddy (Jeggery) Viss	"	274	162,560		91	160,160		274	165,100		274	157,480		274	153,980	

Source: Prome AC Office.

Table 3D-9 Animal Husbandry

	<u>Thegon Tsp.</u>			<u>Paukuang Tsp.</u>
	(Total)	(Other Area)	(Pilot Area) (6.3%)*	
- Buffalos	3,358	3,146	212	1,500*
- Cows & Oxes	30,105	28,208	1,897	15,000*
- Goats	160	150	10	52
- Hogs	2,600	2,436	164	1,600*
- Poultry	72,603	68,029	4,574	33,000*
- Duck	11,800	11,057	743	128
- Horses	-	-	-	103

* Estimation

Source: Medical Treatment & Husbandry Section,
Paukuang & Thegon Tsp. 1977/78.

Table 3D-10 Purchase, Storage and Distribution or Seeds, 1979-80, Agriculture Corp.
(Upto 30-8-79)

Sr. No.	Crops and Varieties	Store and Purchase, Baskets		Distribution (Baskets)			Remain
		1978-79 (Remainder)	Purchase (1979-80)	Prome Township	Other Township	Total	
	<u>Paddy</u>						
1.	Shwe-Wa-Lay	176	510	245	441	686	-
2.	Shwe-Wa-Tun	159	-	159	-	159	-
3.	Ma-Naw-Hari	148	-	48	100	148	-
4.	Sein-Ta-Lay	159	1,200	1,359	-	1,359	-
5.	Sunflower	331	-	23	-	23	308
6.	Maize	-	46	15	-	15	31
7.	Jute	86	-	13	-	13	73
8.	Mat-Pe (Black Bean)	-	217	9	-	9	208
9.	Gram	-	500	-	-	-	500
		<u>1,059</u>	<u>2,473</u>	<u>1,871</u>	<u>541</u>	<u>2,412</u>	<u>1,120</u>

PROME

Table 3D-11 Distribution of Farm Input Materials

1978/79

	<u>Paukkuang</u>	<u>Thegon</u>
<u>Fertilizers:</u>		
Urea	570.0 (ton)	1,204.175 (ton)
T.S.P.	12.0	58.20
Potash	1.0	58.45
Hyper	1.7	-
Rock phosphate	1.1	20.75
<u>Chemicals:</u>		
Endrin 19.5%	353.5 gallon	97.0 gallon
" 5.0%	392.0 "	-
Linden P0130	22.4 lb	224.0 lb
Aldrin P5	-	560.0 lb
Linden P65	112.0 lb	112.0 lb
Zinc phosphate	26.68 lb	26.4 lb
Alsin 50 %	16.16 gallon	2.1 gallon
Malathion 90%	75.5 gallon	1.0 gallon
DDT 25%	9.0 gallon	-
DDT 75%	44.28 lb	3.0 lb
EPN 45%	4.4 gallon	-
Diaziron 40%	11.0 gallon	-
Dimecron 50%	10.56 gallon	-

Source: Paukkuang AC Office, Thegon AC Office.

Table 3D-12 Recommended In-Put Requirement for Cultivation/per Acre

Paukkaung Township

1978/79

Crops	Average in-put/per acre											Remarks
	Mineral fertilizers lbs		Organic ferti- lizers tons		Chemicals lbs & Gallone		Insecticide		Minerals		Seed Rates	
	Urea	T. Super	Potash	FYM	Compost.	Powder in lbs.	Liquid in gall	Other Ounces	Gypsum Viss	Viss		
1. Paddy (HYV)	84	56	14	1	1	5	1/6	1/4	Zinc 10 Viss	2 baskets		
2. Cotton (LSC)	64	56	28	1	1	5	2	-	-	10 Viss		
3. Sunflower	84	28	-	1	1	-	1/6	-	-	3/8 baskets		
4. Mat. pe	28	28	-	-	1	-	1/6	-	-	3/8 "		
5. Gram.	28	28	-	-	1	-	1/6	-	-	1 "		
6. Sesmum	28	28	-	1	1	-	1/6	-	-	1/8 "		
7. Groundnut	28	28	-	1	1	5	1/6	-	-	6 "		
8. Maize (seeds)	56	28	-	1	1	-	-	-	-	3/8 "		
Township distribution	570 tons	12 tons	1 ton	-	-	-	-	-	-	(Chemicals dist. see Table 11)		

Source: Paukkuang AC Office.

Table 3D-13 Present Total Labour Input

I. Labour Input*	Unit: man-day												
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
a. Paddy (L.V.)	1.5				1.5	5.5	10.5	2.0	1.5	1.5	2.0	5.0	32.0
b. Paddy (HYV)	2.0				1.5	7.5	11.5	3.0	1.5	1.5	2.5	5.0	36.0
c. Sesame (Early)					3.0	5.5	2.5	8.5	9.5				29.0
d. Sesame (Late)									6.0	2.5	2.5	18.0	29.0
e. Cotton (L.V.)					1.0	7.0	15.0	15.0	15.0	15.0	1.5	1.5	71.0
f. G'nuts (Monsoon)					2.5	7.5	5.0		22.0				59.0
g. G'nuts (Dry)		22.0								2.5	7.5	5.0	59.0
h. Gram			6.0								1.0		7.0
i. Maize					1.0	1.5	1.0	1.0	5.5	5.0			15.0
j. Sugarcane	8.5	8.5	4.0								2.0	2.0	25.0
II. Total Labour													
a. Paddy (L.V.)	53,500ac	80,250			80,250	347,750	561,750	107,000	80,250	80,250	107,000	267,500	1,712,000
b. Paddy (HYV)	500	1,000			750	3,750	5,750	1,500	750	750	1,250	2,500	18,000
c. Sesame (Early)	2,000				6,000	11,000	5,000	17,000	19,000				58,000
d. Sesame (Late)	2,000								12,000	5,000	5,000	36,000	58,000
e. Cotton (L.V.)	1,000				1,000	7,000	15,000	15,000	15,000	15,000	1,500	1,500	71,000
f. G'nuts (Monsoon)	1,000				2,500	7,500	5,000		22,000				59,000
g. G'nuts (Dry)	1,500	33,000								3,750	11,250	7,500	88,500
h. Gram	2,000		12,000								2,000		14,000
i. Maize	1,300				1,300	1,950	1,300	1,300	7,150	6,500			19,500
j. Sugarcane	1,000	8,500	4,000								2,000	2,000	25,000
Total (Man-day)	89,750	41,500	49,000		91,800	378,950	593,800	141,800	156,150	133,250	130,000	317,000	2,123,000
III. Cattle Operators **	47,125	8,500	18,500	4,000	106,250	316,750	165,500	3,000	31,550	14,300	67,375	145,250	929,600
IV. Total Labour Input (II + III)	136,875	50,000	67,500	4,000	198,050	695,700	758,300	144,800	187,700	147,550	197,375	462,250	3,052,600 (17.1%)
V. Labour Resource (27 working days/month)	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	1,485,000	17,820,000 (100.0)
VI. Balance	1,348,125	1,435,000	1,417,500	1,481,000	1,286,950	789,300	726,700	1,340,200	1,297,300	1,337,450	1,287,625	1,022,750	14,767,400

* See Table 35

** See Table 36

Table 3D-14 Distribution of Labour Input, Present

	Unit: man-day/ac												
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
a. Paddy (L.V.)													
1. Nursery					0.5	0.5							10.0
2. Land Preparation					0.5	2.0	1.5						4.0
3. Transplanting					2.0	7.0							9.0
4. Caring					0.5	2.0	2.0	2.0	1.5	1.5	0.5		10.0
5. Harvesting	1.5									1.5	5.0		8.0
Total	1.5				1.5	6.5	10.5	2.0	1.5	1.5	2.0	5.0	32.0
b. Paddy (HYV)													
1. Nursery					0.5	0.5							1.0
2. Land Preparation					0.5	2.0	1.5						4.0
3. Transplanting					3.0	8.0							11.0
4. Caring					0.5	2.0	2.0	3.0	1.5	1.5	0.5		11.0
5. Harvesting	2.0									2.0	5.0		9.0
Total	2.0				1.5	7.5	11.5	3.0	1.5	1.5	2.5	5.0	36.0
c. Sesame (Early)													
1. Land preparation					0.5	0.5							1.0
2. Sowing					2.5	2.5							5.0
3. Caring					2.5	2.5							5.0
4. Harvesting							8.0	9.0					17.0
5. Transportation							0.5	0.5					1.0
Total					3.0	5.5	2.5	8.5	9.5				29.0
d. Sesame (Late)													
1. Land Preparation									1.0				1.0
2. Sowing									5.0				5.0
3. Caring									2.5	2.5			5.0
4. Harvesting											17.0		17.0
5. Transportation											1.0		1.0
Total									6.0	2.5	2.5	18.0	29.0
e. Cotton (L.V.)													
1. Land Preparation					0.5	0.5							1.0
2. Sowing					0.5	0.5							1.0
3. Caring					6.0	15.0	15.0	15.0	15.0	15.0			66.0

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
4. Harvesting					1.0	7.0	15.0	15.0	15.0	15.0	1.5	1.5	71.0
Total					1.0	7.0	15.0	15.0	15.0	15.0	1.5	1.5	71.0
f. G'nuts (Monsoon)													
1. Land Preparation					0.5	0.5							1.0
2. Sowing					2.0	2.0							4.0
3. Caring					5.0	5.0							10.0
4. Harvesting									22.0	22.0			44.0
Total					2.5	7.5	5.0		22.0	22.0			59.0
g. G'nuts (Dry)													
1. Land Preparation										0.5	0.5		1.0
2. Sowing										2.0	2.0		4.0
3. Caring											5.0	5.0	10.0
4. Harvesting		22.0	22.0										44.0
Total		22.0	22.0							2.5	7.5	5.0	59.0
h. Pulses (Gram)													
1. Sowing											1.0		1.0
2. Harvesting													6.0
Total											1.0		7.0
i. Others (Maize)													
1. Sowing					1.0	1.0							2.0
2. Caring					0.5	1.0	1.0	0.5					3.0
3. Harvesting								5.0	5.0				10.0
Total					1.0	1.5	1.0	1.0	5.5	5.0			15.0
j. Sugarcane													
1. Land Preparation	0.5	0.5											1.0
2. Seeding	5.0	5.0	4.0										14.0
3. Harvesting	3.0	3.0									2.0	2.0	10.0
Total	8.5	8.5	4.0								2.0	2.0	25.0

Table 3D-15 Number of Cattles & Buffalos

	Cattle			Buffalo		
	less than 3 years	Over 3 years	Total	less than 3 years	Over 3 years	Total
(Thegon)						
Ainpawaga	142	848	990	18	50	68
Ainma	200	964	1,164	31	277	308
Kyawgaung	62	1,024	1,086	3	11	14
Yattha	39	429	468	-	-	-
Nojattawmi	71	815	886	15	30	45
Laenarlenhla	20	456	476	-	-	-
Ohkpo	46	668	714	4	18	22
Sinmitway	62	524	586	6	48	54
Kyautat	17	359	376	28	215	243
Nwekawk	52	321	373	22	188	210
Nyaunggon	76	404	480	5	245	250
Bayamain	66	497	563	14	86	100
Zigon	127	684	811	1	108	109
Paitchigen	51	141	192	-	6	6
Yonepintat	143	537	680	11	235	246
Thamuncho	170	650	820	4	38	42
Ywama	75	306	381	6	11	17
Ohksway	54	155	209	-	-	-
Leintan	38	385	423	-	2	2
Zalet	63	608	671	14	16	30
Linlet	30	407	437	-	8	8
Kantangon	92	733	825	-	52	52
Ziohk	57	306	363	28	69	97
Thabya Hla	80	611	691	-	10	10
Nyaung Win	64	681	745	3	26	29
Putigon	126	698	824	3	18	21
Kannitsint	81	581	662	4	10	14
Laung Gyi	73	898	971	-	6	6
Ywathit	47	438	485	-	2	2
Yintaikmyaw	245	835	1,080	4	5	9

	Cattle			Buffalo		
	less than 3 years	Over 3 years	Total	less than 3 years	Over 3 years	Total
Kyopin	36	717	753	11	2	13
Sub-total (1)	<u>2,505</u>	<u>17,680</u>	<u>20,185</u>	<u>235</u>	<u>1,792</u>	<u>2,027</u>
<u>Pilot Scheme*</u>	<u>158</u>	<u>1,114</u>	<u>1,272</u>	<u>15</u>	<u>113</u>	<u>128</u>
Other Area (2)	<u>2,347</u>	<u>16,566</u>	<u>18,913</u>	<u>220</u>	<u>1,679</u>	<u>1,899</u>
(Paukuang)						
Gyobinwaing	338	247	585	165	44	209
Thabyedaung	246	92	338	4	38	42
Chaunggaung	428	159	587	-	21	21
Ngakuaing	703	212	915	26	12	38
Inngagwa	358	169	527	18	28	46
Sub-total (3)	<u>2,073</u>	<u>1,059</u>	<u>2,952</u>	<u>213</u>	<u>143</u>	<u>356</u>
(Paukuang Basin)						
Wet Toe	321	238	559	3	31	34
Ywa Daung	193	196	389	1	4	5
Yat Thit	574	249	823	21	80	101
Sub-total (4)	<u>1,088</u>	<u>683</u>	<u>1,771</u>	<u>25</u>	<u>115</u>	<u>140</u>
Other Project						
Total (2)+(3)+(4)	<u>5,508</u>	<u>18,128</u>	<u>23,636</u>	<u>458</u>	<u>1,937</u>	<u>2,395</u>

Working Power Pilot Scheme Area $(1,272 + 128) \times 75/100^{**} = 1,050$
 Other Area $(23,636 + 2,395) \times 75/100^{**} = 19,523$

* Estimated at 6.3%

** Estimated at 75%

Source: Veterinarian Office, Pakkuang, Thegon.

Table 3D-16 Present Total Cattle Input

I. Cattle Input*	Unit: Cattle-day												
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
a. Paddy (L.V.)	1.5				3.0	11.0	6.0				1.5	5.0	28.0
b. Paddy (HYV)						2.0	20.0				8.0		30.0
c. Sesame (Early)					12.0	12.0		1.0	1.0				26.0
d. Sesame (Late)									24.0			2.0	26.0
e. Cotton (L.V.)				8.0	8.0						1.0	1.0	18.0
f. G'nuts (Monsoon)					18.0	18.0		4.0	4.0				44.0
g. G'nuts (Dry)		2.0	6.0							13.0	21.0		44.0
h. Gram			12.0										12.0
i. Maize										7.0			14.0
j. Sugarcane	14.0	14.0	4.0		2.0	2.0					18.0	18.0	72.0
II. Total Cattle Input					160,500	588,500	321,000				80,250	267,500	1,498,000
a. Paddy (LV.)	53,500ac												
b. Paddy (HYV)	500				1,000	10,000					4,000		15,000
c. Sesame (Early)	2,000				24,000	24,000		2,000	2,000				52,000
d. Sesame (Late)	2,000							48,000	48,000			4,000	52,000
e. Cotton (L.V.)	1,000			8,000	8,000						1,000	1,000	18,000
f. G'nuts (Monsoon)	1,000				18,000	18,000		4,000	4,000				44,000
g. G'nuts (Dry)	1,500	3,000	9,000							19,500	31,500		66,000
h. Gram	2,000		24,000										24,000
i. Maize	1,300									9,100			18,200
j. Sugarcane	1,000	14,000	4,000		2,000	2,000					18,000	18,000	72,000
Total (Cattle-day)	94,250	17,000	37,000	8,000	212,500	633,500	331,000	6,000	63,100	28,600	134,750	290,500	1,859,200
III. Total Cattle Operator	47,125	8,500	18,500	4,000	106,250	316,750	165,500	3,000	31,550	14,300	67,375	145,250	929,600
IV. Cattle Resources	527,121	527,121	527,121	527,121	527,121	527,121	527,121	527,121	527,121	527,121	527,121	527,121	6,325,452
19,523													(100.0%)
27 working days/month													
V. Balance (IV-II)													-106,379

* See Table 37