

**TABLE K-4-10 BLOCK-WISE CROPPED ACREAGE BY TYPICAL FARM**

	<u>Prome</u>	<u>Nattalin</u>	<u>Letpadan</u>	<u>Rangoon</u>	<u>Padaung</u>	<u>Myanaung</u>	<u>Henzada</u>
1. Average Farm Size (ac)	4.6	4.6	5.4	7.0	3.6	3.7	4.8
2. Present Cropped Acreage							
- Cropping Intensity (%)	104	107	111	115	102	108	109
- Gross Area Sown (ac)	4.8	4.9	6.0	8.1	3.7	4.0	5.2
Paddy (HYV)	0.1	0.2	0.8	1.1	0.0	0.3	0.4
Paddy (Ordinary)	4.1	3.6	4.6	6.7	3.2	3.2	3.5
Jute (Pre-monsoon)	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Jute (Monsoon)	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Groundnuts (Rain)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Groundnuts (Winter)	0.2	0.1	0.3	0.1	0.3	0.3	0.3
Sesame (Early)	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Sesame (Late)	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Pulses	0.1	0.7	0.2	0.1	0.1	0.2	0.8
3. Proposed Cropped Acreage							
- Cropping Intensity (%)	168	168	168	168	168	168	109
- Gross Area Sown (ac)	7.7	7.7	9.1	11.8	6.0	6.2	5.2
Paddy (HYV)-Wet	4.5	4.5	5.5	7.1	3.5	3.7	2.3 <sup>1/</sup>
Paddy (HYV)-Dry	0.4	0.4	0.5	0.6	0.3	0.3	1.6 <sup>1/</sup>
Groundnuts (Winter)	0.9	0.9	1.0	1.3	0.7	0.7	0.3
Sesame (Late)	0.9	0.9	1.0	1.3	0.7	0.7	-
Pulses	1.0	-	1.1	1.5	0.8	0.8	0.8
Jute (Pre-monsoon)	-	-	-	-	-	-	0.2

Note: <sup>1/</sup> Ordinary Variety

TABLE K-4-11 INCREMENTAL NET FARM INCOME

	Prome	Nattalin	Letpadan	Rangoon	Padaung	Myanaung	Henzada
1. Average Farm Size (ac)	4.6	4.6	5.4	7.0	3.6	3.7	4.8
2. Net Farm Income (Present)							
- Paddy (HYV)	29	59	236	324	0	88	118
- Paddy (Ordinary)	554	487	622	906	433	433	473
- Jute (Pre-monsoon)	0	0	0	0	0	0	55
- Jute (Monsoon)	0	38	0	0	19	0	0
- Groundnuts (Rain)	36	0	0	0	0	0	0
- Groundnuts (Winter)	137	69	206	69	206	206	206
- Sesame (Early)	76	38	0	0	0	0	0
- Sesame (Late)	0	0	41	0	0	0	0
- Pulses	3	22	6	3	3	6	25
- Sub-total	<u>835</u>	<u>713</u>	<u>1,111</u>	<u>1,343</u>	<u>661</u>	<u>733</u>	<u>877</u>
3. Net Farm Income (Proposed)							
- Paddy (HYV)-wet	1,657	1,657	2,025	2,614	1,289	1,362	675
- Paddy (HYV)-dry	167	167	209	251	126	126	0
- Paddy (Ordinary)	0	0	0	0	0	0	218
- Groundnuts (Winter)	1,949	1,949	2,166	2,816	1,516	1,516	256
- Sesame (Late)	1,474	1,474	1,637	2,128	1,146	1,146	-
- Pulses	278	278	306	417	223	223	41
- Jute (Pre-monsoon)	0	0	0	0	0	0	76
- Sub-total	<u>5,525</u>	<u>5,525</u>	<u>6,343</u>	<u>8,226</u>	<u>4,300</u>	<u>4,373</u>	<u>1,266</u>
4. Incremental Net Farm Income	4,690	4,812	5,232	6,883	3,639	3,640	389

## APPENDICES



APPENDIX K-1. STATISTICAL ANALYSIS TABLE

Crop:	Paddy		No. of			Draught			Time	
	Year	Production (`000 t.)	Yield (Kg/ac)	Sown Acreage (`000 ac)	Urea Input (t.tons)	Price (Rs/t.ton)	Irrigation Area (`000 ac)	Village Manager	Population (`000)	Animal Trend
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970/71	8,033	664	12,294	16,590	179	2,073	3,882	27,034	4,150	1
71/72	8,046	665	12,300	29,782	179	2,199	3,882	27,637	4,201	2
72/73	7,241	612	12,014	43,965	185	2,198	4,360	28,262	4,230	3
73/74	8,466	672	12,575	47,202	213	2,400	5,592	28,886	4,206	4
74/75	8,448	671	12,793	60,067	292	2,412	5,592	29,521	4,256	5
75/76	9,062	716	12,858	62,468	438	2,432	5,592	30,170	4,299	6
76/77	9,172	743	12,547	73,489	438	2,318	5,911	30,834	4,356	7
77/78	9,489	757	12,736	87,292	438	2,384	5,932	31,512	4,388	8

## Correlation Coefficient Matrix

(1)	1.000	0.978	0.835	0.776	0.892	0.657	0.797	0.850	0.792	0.846
(2)	0.978	1.000	0.710	0.756	0.892	0.515	0.712	0.831	0.822	0.825
(3)	0.835	0.710	1.000	0.653	0.734	0.843	0.794	0.705	0.556	0.708
(4)	0.776	0.756	0.653	1.000	0.880	0.771	0.900	0.989	0.963	0.990
(5)	0.892	0.892	0.734	0.880	1.000	0.656	0.811	0.932	0.920	0.930
(6)	0.657	0.515	0.843	0.771	0.656	1.000	0.892	0.769	0.614	0.778
(7)	0.797	0.712	0.794	0.900	0.811	0.892	1.000	0.915	0.790	0.920
(8)	0.850	0.831	0.705	0.989	0.932	0.769	0.915	1.000	0.968	0.999
(9)	0.792	0.822	0.556	0.963	0.920	0.614	0.790	0.968	1.000	0.965
(10)	0.846	0.825	0.708	0.990	0.930	0.778	0.920	0.999	0.965	1.000

STATISTICAL ANALYSIS TABLE

Crop: Maize		<u>Year</u>	<u>Production ('000 &amp; t.)</u>	<u>Yield (Kg/ac)</u>	<u>Sown Acreage ('000 ac)</u>	<u>Urea Input (t. tons)</u>	<u>Price (Rs/100 BKT)</u>	<u>Irrigation Area ('000 ac)</u>	<u>No. of Village Manager</u>	<u>Population ('000)</u>	<u>Draught Animal</u>	<u>Time Trend</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)			
1970/71	47.	273	176	232	400	2,073	3,882	27,034	4,150	1		
71/72	57	232	250	606	400	2,199	3,882	27,637	4,201	2		
72/73	55	238	235	739	600	2,198	4,360	28,262	4,230	3		
73/74	61	283	219	1,220	800	2,400	5,592	28,886	4,206	4		
74/75	64	302	215	1,770	1,000	2,412	5,592	29,521	4,256	5		
75/76	60	300	203	1,916	1,400	2,432	5,592	30,170	4,299	6		
76/77	57	291	199	912	2,000	2,318	5,911	30,834	4,356	7		
77/78	74	362	207	505	2,000	2,384	5,932	31,512	4,388	8		
Correlation Coefficient Matrix												
(1)	1.000	0.756	0.188	0.276	0.636	0.767	0.717	0.777	0.721	0.778		
(2)	0.756	1.000	-0.499	0.175	0.783	0.620	0.775	0.808	0.727	0.803		
(3)	0.188	-0.499	1.000	0.063	-0.326	0.056	-0.237	-0.185	-0.124	-0.178		
(4)	0.276	0.175	0.063	1.000	0.197	0.774	0.547	0.349	0.188	0.364		
(5)	0.636	0.783	-0.326	0.197	1.000	0.617	0.851	0.969	0.967	0.965		
(6)	0.767	0.620	0.056	0.774	0.617	1.000	0.892	0.769	0.614	0.778		
(7)	0.717	0.775	-0.237	0.547	0.851	0.892	1.000	0.915	0.790	0.920		
(8)	0.777	0.808	-0.185	0.349	0.969	0.769	0.915	1.000	0.968	0.999		
(9)	0.721	0.727	-0.124	0.188	0.967	0.614	0.790	0.968	1.000	0.965		
(10)	0.778	0.803	-0.178	0.364	0.965	0.778	0.920	0.999	0.965	1.000		

STATISTICAL ANALYSIS TABLE

Crop: Groundnuts

Year	Production ('000k.t.)	Yield (Kg/ac)	Acreage ('000 ac)	Sown	Urea Input (2.tons)	Price (Rs/100 BKT)	Irrigation Area ('000 ac)	Village Manager	Population ('000)	Draught Animal ('000)	Time Trend (10)
				(1)	(2)	(3)	(4)	(5)			
1970/71	521	305	1,735	1,435	1,164	2,073	3,882	27,034	4,150	1	
71/72	478	290	1,674	2,618	1,747	2,199	3,882	27,637	4,201	2	
72/73	377	245	1,563	2,119	2,622	2,198	4,360	28,262	4,230	3	
73/74	405	252	1,638	2,474	2,964	2,400	5,592	28,886	4,206	4	
74/75	459	284	1,666	3,448	4,256	2,412	5,592	29,521	4,256	5	
75/76	404	242	1,696	4,096	6,238	2,432	5,592	30,170	4,299	6	
76/77	416	281	1,507	2,231	5,400	2,318	5,911	30,834	4,356	7	
77/78	457	313	1,481	2,056	5,400	2,384	5,932	31,512	4,388	8	

Correlation Coefficient Matrix

(1)	1.000	0.837	0.418	-0.347	-0.449	-0.483	-0.436	-0.372	-0.332	-0.383	
(2)	0.837	1.000	-0.142	-0.507	-0.169	-0.307	-0.113	0.051	0.133	0.036	
(3)	0.418	-0.142	1.000	0.297	-0.462	-0.266	-0.523	-0.695	-0.777	-0.690	
(4)	-0.347	-0.507	0.297	1.000	0.566	0.700	0.396	0.309	0.205	0.322	
(5)	-0.449	-0.159	-0.452	0.566	1.000	0.807	0.874	0.933	0.884	0.937	
(6)	-0.483	-0.307	-0.266	0.700	0.807	1.000	0.892	0.769	0.614	0.778	
(7)	-0.436	-0.113	-0.523	0.396	0.874	0.892	1.000	0.915	0.790	0.920	
(8)	-0.372	0.051	-0.695	0.309	0.933	0.769	0.915	1.000	0.968	0.999	
(9)	-0.332	0.133	-0.777	0.205	0.884	0.614	0.790	0.968	1.000	0.965	
(10)	-0.383	0.036	-0.690	0.322	0.937	0.778	0.920	0.999	0.965	1.000	

STATISTICAL ANALYSIS TABLE

Year	Crop: Sesamum										No. of Village Manager	Population ('000)	Draught Animal ('000)	Time Trend	
	Production ('000 l.t.)	Yield (Kg/ac)	Acreage ('000 ac)	Sown Urea Input (t. tons)	Price (Rs/100 BKT)	Irrigation Area ('000 ac)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1970/71	130	53	2,510	355	6,051	2,073	3,882	27,034	4,150	1					
71/72	111	49	2,292	0	6,144	2,199	3,882	27,637	4,201	2					
72/73	69	31	2,256	25	7,328	2,198	4,360	28,262	4,230	3					
73/74	152	58	2,660	50	9,113	2,400	5,592	28,886	4,206	4					
74/75	94	37	2,609	729	12,756	2,412	5,592	29,521	4,256	5					
75/76	132	54	2,464	901	16,355	2,432	5,592	30,170	4,299	6					
76/77	91	35	2,630	575	17,000	2,318	5,911	30,834	4,356	7					
77/78	109	41	2,696	543	17,000	2,384	5,932	31,512	4,388	8					
Correlation Coefficient Matrix															
(1)	1.000	0.967	0.367	0.026	-0.073	0.182	0.073	-0.127	-0.286	-0.127					
(2)	0.967	1.000	0.127	-0.070	-0.236	0.031	-0.140	-0.308	-0.434	-0.308					
(3)	0.367	0.127	1.000	0.463	0.605	0.561	0.771	0.625	0.477	0.622					
(4)	0.026	-0.070	0.463	1.000	0.794	0.545	0.609	0.632	0.568	0.633					
(5)	-0.073	-0.236	0.605	0.794	1.000	0.740	0.887	0.965	0.927	0.965					
(6)	0.182	0.031	0.561	0.545	0.740	1.000	0.892	0.769	0.614	0.778					
(7)	0.073	-0.140	0.771	0.609	0.887	0.892	1.000	0.915	0.790	0.920					
(8)	-0.127	-0.308	0.625	0.632	0.965	0.769	0.915	1.000	0.968	0.999					
(9)	-0.286	-0.434	0.477	0.568	0.927	0.614	0.790	0.968	1.000	0.965					
(10)	-0.127	-0.308	0.622	0.633	0.965	0.778	0.920	0.999	0.965	1.000					

STATISTICAL ANALYSIS TABLE

Crop:	Pulses		Sown Acresage ('000 ac)	Urea Input (t. tons)	1/ Price (Rs/100 BKT)	Irrigation Area ('000 ac)	No. of Village Manager		Population ('000)	Draught Animal (`000)	Time Trend
	Year	Production (`000 t.)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970/71	285	184	1,576	385	1,200	2,073	3,882	27,034	4,150	1	
71/72	313.	171	1,855	1,963	1,300	2,199	3,882	27,637	4,201	2	
72/73	265	145	1,861	745	1,450	2,198	4,360	28,262	4,230	3	
73/74	264	159	1,687	1,782	1,550	2,400	5,592	28,886	4,206	4	
74/75	301	171	1,785	1,008	2,000	2,412	5,592	29,521	4,256	5	
75/76	256	157	1,656	1,430	2,400	2,432	5,592	30,170	4,299	6	
76/77	314	191	1,666	528	5,000	2,318	5,911	30,834	4,356	7	
77/78	347	202	1,749	230	5,000	2,384	5,932	31,512	4,388	8	
Correlation Coefficient Matrix											
(1)	1.000	0.859	0.188	-0.410	0.657	0.024	0.202	0.429	0.534	0.418	
(2)	0.859	1.000	-0.338	-0.578	0.709	-0.023	0.275	0.434	0.492	0.420	
(3)	0.188	-0.338	1.000	0.287	-0.159	0.016	-0.203	-0.078	0.020	-0.073	
(4)	-0.410	-0.578	0.287	1.000	-0.545	0.219	-0.161	-0.323	-0.405	-0.312	
(5)	0.657	0.709	-0.159	-0.545	1.000	0.420	0.717	0.889	0.937	0.883	
(6)	0.024	-0.023	0.016	0.219	0.420	1.000	0.892	0.769	0.614	0.778	
(7)	0.202	0.275	-0.203	-0.161	0.717	0.892	1.000	0.915	0.790	0.920	
(8)	0.429	0.434	-0.078	-0.323	0.889	0.769	0.915	1.000	0.968	0.999	
(9)	0.534	0.492	0.020	-0.405	0.937	0.614	0.790	0.968	1.000	0.965	
(10)	0.418	0.420	-0.073	-0.312	0.883	0.778	0.920	0.999	0.965	1.000	

Note: 1/ Price of Matpe

STATISTICAL ANALYSIS TABLE

Crop:	Jute		Year	Production ('000L.t.)	Yield (Kg/ac)	Sown Acreage ('000 ac)	Urea Input (t.tons)	Price (Rs/100Viss)	Irrigation Area ('000 ac)	No. of Village Manager	Population ('000)	Draught Animal ('000)	Time Trend
	(1)	(2)											
1970/71	28	243	115	6,119	100	2,073	3,882	27,034	4,150	1			
71/72	65	292	226	6,679	100	2,199	3,882	27,637	4,201	2			
72/73	88	309	288	11,453	125	2,198	4,360	28,262	4,230	3			
73/74	78	271	291	10,690	125	2,400	5,592	28,886	4,206	4			
74/75	39	240	167	5,300	175	2,412	5,592	29,521	4,256	5			
75/76	37	257	148	5,627	220	2,432	5,592	30,170	4,299	6			
76/77	27	199	136	6,970	265	2,318	5,911	30,834	4,356	7			
77/78	55	318	176	9,030	265	2,384	5,932	31,512	4,388	8			
Correlation Coefficient Matrix													
(1)	1.000	0.758	0.973	0.844	-0.434	-0.027	-0.211	-0.248	-0.239	-0.243			
(2)	0.758	1.000	0.598	0.588	-0.225	-0.061	-0.247	-0.090	-0.026	-0.093			
(3)	0.973	0.598	1.000	0.818	-0.450	0.051	-0.148	-0.252	-0.280	-0.244			
(4)	0.844	0.588	0.818	1.000	-0.156	-0.031	0.012	-0.013	-0.008	-0.013			
(5)	-0.434	-0.225	-0.450	-0.156	1.000	0.622	0.832	0.966	0.970	0.963			
(6)	-0.027	-0.061	0.051	-0.031	0.622	1.000	0.892	0.769	0.614	0.778			
(7)	-0.211	-0.247	-0.148	0.012	0.832	0.892	1.000	0.915	0.790	0.920			
(8)	-0.248	-0.090	-0.252	-0.013	0.966	0.769	0.915	1.000	0.968	0.999			
(9)	-0.239	-0.026	-0.280	-0.008	0.970	0.614	0.790	0.968	1.000	0.965			
(10)	-0.243	-0.093	-0.244	-0.013	0.963	0.778	0.920	0.999	0.965	1.000			

STATISTICAL ANALYSIS TABLE

Crop: Cotton

Year	Production ('000q.t.)	Yield (Kg/ac)	Sown Acreage ('000ac)	Urea Input (l.ton)	Price (Ks/100 Viss)	Irrigation Area ('000 ac)	No. of Village Manager		Population ('000)	Draught Animal ('000)	Time Trend
							(1)	(2)	(3)	(4)	(5)
1970/71	42	91.4	467	462	155	2,073	3,882	27,034	4,150	1	
71/72	42	77.0	554	-	180	2,199	3,882	27,637	4,201	2	
72/73	43	82.1	532	5,161	180	2,198	4,360	28,262	4,230	3	
73/74	37	71.3	527	1,842	350	2,400	5,592	28,886	4,206	4	
74/75	42	78.7	542	3,163	350	2,412	5,592	29,521	4,256	5	
75/76	37	73.1	514	3,044	550	2,432	5,592	30,170	4,299	6	
76/77	31	78.4	402	1,683	700	2,318	5,911	30,834	4,356	7	
77/78	41	102.9	405	2,956	700	2,384	5,932	31,512	4,388	8	

Correlation Coefficient Matrix

(1)	1.000	0.379	0.486	0.154	-0.673	-0.400	-0.606	-0.530	-0.480	-0.533
(2)	0.379	1.000	-0.621	0.048	0.199	-0.267	-0.034	0.205	0.307	0.189
(3)	0.486	-0.621	1.000	0.085	-0.724	-0.029	-0.439	-0.603	-0.666	-0.591
(4)	0.154	0.048	0.085	1.000	0.163	0.364	0.341	0.361	0.346	0.367
(5)	-0.673	0.199	-0.724	0.163	1.000	0.672	0.874	0.964	0.941	0.962
(6)	-0.400	-0.267	-0.029	0.364	0.672	1.000	0.892	0.769	0.614	0.778
(7)	-0.606	-0.034	-0.439	0.341	0.874	0.892	1.000	0.915	0.790	0.920
(8)	-0.530	0.205	-0.603	0.361	0.964	0.769	0.915	1.000	0.968	0.999
(9)	-0.480	0.307	-0.666	0.346	0.941	0.614	0.790	0.968	1.000	0.965
(10)	-0.533	0.189	-0.591	0.367	0.962	0.778	0.920	0.999	0.965	1.000



## Appendix K-2 PRICE ANALYSIS

### ECONOMIC PRICE OF RICE/PADDY

1. 1990 Projected Price (1979 Constant US\$) <sup>1/</sup> 5% broken, f.o.b., Bangkok	US\$ 453/m.t.
2. 1990 Projected Price, 35% broken, f.o.b., Rangoon (Quality differential: less 30%)	US\$ 317/m.t. <sup>2/</sup> Ks4,121/m.t. <sup>2/</sup>
3. Average Cost of Handling and Transportation by BRC/RTC/IWTC (M/P Area - Rangoon)	Ks 70/m.t.
4. Ex-mill Price of Rice	Ks4,051/m.t.
5. Economic Milling Charge Paddy Price at Mill (Processing Ratio: 65%)	Ks 157/m.t. Ks2,531/m.t.
6. Cost of Handling and Transportation by RTC/IWTC from Depots to Mills	Ks 25/m.t.
7. Ex-Depot Price of Paddy	Ks2,506/m.t.
8. Cost of Handling and Transportation by Sampan/Bullock-Cart from Farm Gate to Depot	Ks . 50/m.t.
9. Farm Gate Price of Paddy	Ks2,456/m.t. Ks 51/BKT

Note: <sup>1/</sup> IBRD Commodity Price Forecast, June 1979

<sup>2/</sup> Estimated using the shadow exchange rate  
US\$1.00 = Ks13.00

ECONOMIC PRICE OF MATPE

1. 1990 Projected Price (1979 Constant US\$) <sup>1/</sup> c.i.f., Europe	US\$ 443/m.t.
2. Cost of Freight and Insurance	US\$ 75/m.t.
3. 1990 Projected Price, f.o.b., Rangoon (Quality differental: less 20%)	US\$ 294/m.t. Ks3,822/m.t.
4. Average Cost of Handling and Transportation by BRC/RTC/IWTC (Rangoon - M/P Area)	Ks 400/m.t.
5. Average Cost of Handling and Transportation from Farm Gate to Depot	Ks 100/m.t.
6. Farm Gate Price of Matpe	Ks3,322/m.t. ks 108/BKT

Note: 1/ Estimated from the projected soybeans price as follows:

(US\$369 x 1.2 = US\$443)  
IBRD Commodity Price Forecast, June 1978

2/ Estimated using the shadow exchange rate  
US\$1.00 = Ks13.00

ECONOMIC PRICE OF JUTE

1. 1990 Projected Price (1979 Constant US\$) <sup>1/</sup> f.o.b., Chittagong	US\$ 392/m.t.
2. 1990 Projected Price, f.o.b., Rangoon (Quality differential: less 15%)	US\$ 333/m.t. Ks4,329/m.t. <sup>2/</sup>
3. Average Cost of Handling and Transportation by BRC/RTC/IWTC (Rangoon - M/P Area)	Ks 300/m.t.
4. Price at Buying Depot	Ks4,029/m.t.
5. Average Cost of Handling, Bailing and Transportation Cost from Farm Gate to Buying Depot	Ks 100/m.t.
6. Farm Gate Price of Jute	Ks3,929/m.t. Ks 6.4/viss

Note: 1/ IBRD Commodity Price Forecast, June 1978

2/ Estimated using the shadow exchange rate  
US\$1.00 = Ks13.00

ECONOMIC PRICE OF UREA

1. 1990 Projected Price (1979 Constant US\$) <sup>1/</sup> f.o.b., N.W. Europe, bagged	US\$ 216/m.t.
2. 1990 Projected Price, f.o.b., Rangoon	US\$ 216/m.t. <sup>2/</sup> Ks2,808/m.t._
3. Cost of Handling and Transportation by BRC/RTC (Factory - Rangoon)	Ks 500/m.t.
4. Ex-factory Price	Ks2,308/m.t.
5. Average Cost of Handling and Transportation from Factory to M/P Area (AC TSP Godown)	Ks 100/m.t.
6. Price of Urea at AC TSP Godown	Ks2,408/m.t. Ks . 61/56lbs
7. Cost of Transportation from AC TSP Godown to Farm Gate	Ks 3/56lbs
8. Farm Gate Price of Urea	Ks 64/56lbs

Note: 1/ IBRD Commodity Price Forecast, June 1978

2/ Estimated using the shadow exchange rate  
US\$1.00 = Ks13.00

ECONOMIC PRICE OF T.S.P.<sup>1/</sup>

1. 1990 Projected Price (1979 Constant US\$) <sup>2/</sup> f.o.b., Florida, bulk	US\$ 182/m.t.
2. Cost of Freight and Insurance	US\$ 50/m.t.
3. c.i.f., Price at Rangoon	US\$ 232/m.t. <sup>3/</sup> Ks3,016/m.t. <sup>3/</sup>
4. Average Cost of Handling and Transportation by BRC/IWTC/BRC (Rangoon - AC TSP Codown in M/P Area)	Ks 300/m.t.
5. Price of T.S.P. at AC TSP Godown	Ks3,316/m.t. Ks 168/l12lbs
6. Cost of Transportation from AC TSP Godown to Farm Gate	Ks 3/l12lbs
7. Farm Gate Price of T.S.P.	Ks 171/l12lbs

Note: 1/ Triple Superphosphate

2/ IBRD Commodity Price Forecast, June 1978

3/ Estimated using the shadow exchange rate  
US\$1.00 = Ks13.00

ECINOMIC PRICE OF POTASH

1. 1990 Projected Price (1979 Constant US\$) <sup>1/</sup> f.o.b., Vancouver, bulk	US\$ 91/m.t.
2. Cost of Freight and Insurance	US\$ 30/m.t.
3. c.i.f. Price at Rangoon	US\$ 121/m.t. <sup>2/</sup> Ks1,573/m.t. <sup>2/</sup>
4. Average Cost of Handling and Transportation by BRC/IWTC/RTC (Rangoon-AC TSP Godown in M/P Area)	Ks 250/m.t.
5. Price of Potash at AC TSP Godown	Ks1,823/m.t. Ks 93/l12lbs
6. Cost of Transportation from AC TSP Godown to Farm Gate	Ks 3/l12lbs
7. Farm Gate Price of Potash	Ks 96/l12lbs

Note: <sup>1/</sup> IBRD Commodity Price Forecast, June 1978

<sup>2/</sup> Estimated using the shadow exchange rate  
US\$1.00 = Ks13.00

Appendix K-3 ECONOMIC NET PRODUCTION VALUE

Crop: Paddy

	(Unit: Kyat per acre)						
	Ordinary Variety		HYV (Wet)		HYV (Dry)		
	P	W	P	W	W	W	
Yield (BKT)	38.2	40.0	63.6	75.0	100.0	110.0	
Unit Price (Ks/BKT)	51	51	51	51	51	51	
<u>G.P.V. (1)</u>	<u>1,948.2</u>	<u>2,040.0</u>	<u>3,243.6</u>	<u>3,825.0</u>	<u>5,100.0</u>	<u>5,610.0</u>	
<u>Production Cost</u>							
- Materials							
Seed	76.5	76.5	76.5	76.5	51.0	51.0	
Urea	-	8.0	96.0	128.0	153.1	166.9	
T.S.P.	-	-	42.8	85.5	102.3	119.1	
M. Potash	-	-	-	12.0	18.9	28.3	
Pesticides	-	-	-	87.6	219.0	219.0	
Herbicides	-	-	-	-	41.4	41.4	
Miscellaneous	15.3	16.9	43.1	77.9	117.1	125.1	
<u>Sub-total</u>	<u>91.8</u>	<u>101.4</u>	<u>258.4</u>	<u>467.5</u>	<u>702.8</u>	<u>750.8</u>	
- Farm Labor							
Family	133.6	143.1	159.0	168.5	250.2	250.2	
Hired	89.0	95.4	106.0	112.4	62.5	62.5	
<u>Sub-total</u>	<u>222.6</u>	<u>238.5</u>	<u>265.0</u>	<u>280.9</u>	<u>312.7</u>	<u>312.7</u>	
- Draft Cattle							
Family	84.0	90.0	90.0	96.0	70.0	35.0	
Hired	56.0	60.0	60.0	64.0	-	35.0	
<u>Sub-total</u>	<u>140.0</u>	<u>150.0</u>	<u>150.0</u>	<u>160.0</u>	<u>70.0</u>	<u>70.0</u>	
- Machinery	-	-	-	-	176.0	153.0	
- <u>Total (2)</u>	<u>454.4</u>	<u>489.9</u>	<u>673.4</u>	<u>908.4</u>	<u>1,261.5</u>	<u>1,286.5</u>	
<u>N.P.V. (1)-(2)</u>	<u>1,493.8</u>	<u>1,550.1</u>	<u>2,570.2</u>	<u>2,916.6</u>	<u>3,838.5</u>	<u>4,323.5</u>	

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

ECONOMIC NET PRODUCTION VALUE

Crop: Groundnuts

(Unit: Kyat per acre)

	Winter			Rain	
	P	W	W	P	W
Yield (BKT)	30.4	35.0	60.0	22.2	27.5
Unit Price (Ks/BKT)	47	47	47	47	47
G.P.V	<u>1,428.8</u>	<u>1,645.0</u>	<u>2,820.0</u>	<u>1,043.4</u>	<u>1,292.5</u>
<u>Production Cost</u>					
- Materials					
Seed	282.0	282.0	188.0	282.0	282.0
Urea	5.7	32.0	64.0	5.7	32.0
T.S.P.	7.6	42.8	85.5	7.6	42.8
M. Potash	-	-	12.0	-	-
Pesticides	-	-	87.6	-	-
Herbicides	-	-	-	-	-
Miscellaneous	59.1	71.4	87.4	59.1	71.4
Sub-total	<u>354.4</u>	<u>428.2</u>	<u>524.5</u>	<u>354.4</u>	<u>428.2</u>
- Farm Labor					
Family	321.2	353.0	538.5	257.6	353.0
Hired	214.1	235.3	134.6	171.7	235.3
Sub-total	<u>535.3</u>	<u>588.3</u>	<u>673.1</u>	<u>429.3</u>	<u>588.3</u>
- Draft Cattle					
Family	132.0	132.0	80.0	132.0	132.0
Hired	88.0	88.0	-	88.0	88.0
Sub-total	<u>220.0</u>	<u>220.0</u>	<u>80.0</u>	<u>220.0</u>	<u>220.0</u>
- Machinery	-	-	130.0	-	-
- Total	<u>1,109.7</u>	<u>1,236.5</u>	<u>1,407.6</u>	<u>1,003.7</u>	<u>1,236.5</u>
N.P.V.	<u>319.1</u>	<u>408.5</u>	<u>1,412.4</u>	<u>39.7</u>	<u>56.0</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

## ECONOMIC NET PRODUCTION VALUE

Crop: Sesame

(Unit: Kyat per acre)

	Late			Early	
	P	W	W	P	W
Yield (BKT)	4.0	5.0	12.5	3.8	4.8
Unit Price (Ks/BKT)	158.5	158.5	158.5	158.5	158.5
G.P.V.	634.0	792.5	1,981.3	602.3	760.8
<u>Production Cost</u>					
- Materials					
Seed	29.4	29.4	20.5	29.4	29.4
Urea	-	16.6	16.6	-	16.6
T.S.P.	-	42.8	85.5	-	42.8
M. Potash	-	-	12.0	-	-
Pesticides	-	-	87.6	-	-
Herbicides	-	-	-	-	-
Miscellaneous	5.9	17.8	44.4	5.9	17.8
<u>Sub-total</u>	<u>35.3</u>	<u>108.6</u>	<u>266.6</u>	<u>35.3</u>	<u>108.6</u>
- Farm Labor					
Family	133.6	152.6	229.0	133.6	152.6
Hired	89.0	101.8	57.2	89.0	101.8
<u>Sub-total</u>	<u>222.6</u>	<u>254.4</u>	<u>286.2</u>	<u>222.6</u>	<u>254.4</u>
- Draft Cattle					
Family	78.0	78.0	50.0	78.0	78.0
Hired	52.0	52.0	-	52.0	52.0
<u>Sub-total</u>	<u>130.0</u>	<u>130.0</u>	<u>50.0</u>	<u>130.0</u>	<u>130.0</u>
- Machinery	-	-	130.0	-	-
<u>- Total</u>	<u>387.9</u>	<u>493.0</u>	<u>732.8</u>	<u>387.9</u>	<u>493.0</u>
<u>N.P.V.</u>	<u>246.1</u>	<u>299.5</u>	<u>1,248.5</u>	<u>214.4</u>	<u>267.8</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

ECONOMIC NET PRODUCTION VALUE

Crop: Matpe	(Unit: Kyat per acre)		
	<u>Present</u>	<u>Without Irrigation</u>	<u>With Irrigation</u>
Yield (BKT)	5.1	6.3	12.4
Unit Price (Ks/BKT)	108	108	108
G.P.V.	<u>550.8</u>	<u>680.4</u>	<u>1,339.2</u>
<u>Production Cost</u>			
- Materials			
Seed	12.5	12.5	12.5
Urea	-	16.0	32.0
T.S.P.	-	42.8	85.5
M. Potash	-	-	12.0
Pesticides	-	-	87.6
Herbicides	-	-	-
Miscellaneous	2.5	14.3	45.9
<u>Sub-total</u>	<u>15.0</u>	<u>85.6</u>	<u>275.5</u>
- Farm Labor			
Family	139.9	159.0	250.2
Hired	93.3	106.0	62.5
<u>Sub-total</u>	<u>233.2</u>	<u>265.0</u>	<u>312.7</u>
- Draft Cattle			
Family	96.0	96.0	90.0
Hired	64.0	64.0	-
<u>Sub-total</u>	<u>160.0</u>	<u>160.0</u>	<u>90.0</u>
- Machinery	-	-	130.0
- Total	<u>408.2</u>	<u>510.6</u>	<u>718.2</u>
N.P.V.	<u>142.6</u>	<u>169.8</u>	<u>621.0</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation  
See Appendix K-4

ECONOMIC NET PRODUCTION VALUE

Crop: Jute

(Unit: Kyat per acre)

	Pre-Monsoon			Monsoon	
	P	W	W	P	W
Yield (BKT)	194.1	240	400.0	165.9	210.0
Unit Price (Ks/Biss)	6.4	6.4	6.4	6.4	6.4
<u>G.P.V.</u>	<u>1,242.2</u>	<u>1,536.0</u>	<u>2,560.0</u>	<u>1,061.8</u>	<u>1,334.0</u>
<u>Production Cost</u>					
- Materials					
Seed	26.7	26.7	17.8	26.7	26.7
Urea	64.0	128.0	192.0	64.0	96.0
T.S.P.	24.4	55.0	85.5	24.4	36.6
M. Potash	-	-	-	-	-
Pesticides	-	-	87.6	-	-
Herbicides	-	-	-	-	-
Miscellaneous	23.0	41.9	76.6	23.0	31.9
<u>Sub-total</u>	<u>138.1</u>	<u>251.6</u>	<u>459.5</u>	<u>138.1</u>	<u>191.2</u>
- Farm Labor					
Family	222.6	235.3	368.9	222.6	235.3
Hired	148.4	156.9	92.2	148.4	156.9
<u>Sub-total</u>	<u>371.0</u>	<u>392.2</u>	<u>461.1</u>	<u>371.0</u>	<u>392.2</u>
- Draft Cattie					
Family	66.0	66.0	60.0	66.0	66.0
Hired	44.0	44.0	-	44.0	44.0
<u>Sub-total</u>	<u>110.0</u>	<u>110.0</u>	<u>60.0</u>	<u>110.0</u>	<u>110.0</u>
- Machinery	30.0	30.0	130.0	30.0	30.0
- <u>Total</u>	<u>649.1</u>	<u>783.8</u>	<u>1,110.6</u>	<u>649.1</u>	<u>723.4</u>
<u>N.P.V.</u>	<u>593.1</u>	<u>752.2</u>	<u>1,449.4</u>	<u>412.7</u>	<u>620.6</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4



Appendix K-4 INPUT REQUIREMENT

PRESENT INPUT REQUIREMENT

Item	Unit	Paddy			Jute			Groundnuts			Sesame		
		Ordinary	HIV(Wet)	Pre-monsoon	Monsoon	Rain	Winter	Rain	Winter	Early	Late	Matpe	
Yield	lbs	1,758	2,926	696	625	553	758	205	214	366			
(Unit: per acre)													
Input													
- Seed	lbs	69	69	15	15	150	150	10	10	18			
- Fertilizer													
- Urea	lbs	-	84	56	56	5	5	-	-	-			
- TSP	lbs	-	28	16	16	5	5	-	-	-			
- M. Potash	lbs	-	-	-	-	-	-	-	-	-			
- Pesticides	gal.	-	-	-	-	-	-	-	-	-			
- Herbicides	gal.	-	-	-	-	-	-	-	-	-			
- Labor													
- Family	day	25.2	30.0	42.0	42.0	48.6	60.6	25.2	25.2	26.4			
- Hired	day	16.8	20.0	28.0	28.0	32.4	40.4	16.8	16.8	17.6			
Total	day	42.0	50.0	70.0	70.0	81.0	101.0	42.0	42.0	44.0			
- Animal													
- Family	day	8.4	9.0	6.6	6.6	13.2	13.2	7.8	7.8	9.6			
- Hired	day	5.6	6.0	4.4	4.4	8.8	8.8	5.2	5.2	6.4			
Total	day	14.0	15.0	11.0	11.0	22.0	22.0	13.0	13.0	16.0			
- Machinery	hour	-	-	L.S.	L.S.	-	-	-	-	-			

PROPOSED INPUT REQUIREMENT WITHOUT IRRIGATION

Item	Unit	Yield	Paddy			Jute			Groundnuts			Sesame		
			Ordinary	HYV(Wet)	Pre-monsoon	Monsoon	Rain	Winter	Early	Late	Matpe			
Input	Qbs	1,874	3,453		865	776	687	937	259	268	455			
- Seed	Qbs	69	69		15	15	150	150	10	10	18			
- Fertilizer														
Urea	Qbs	7	112		84	28	28	28	14	14	14			
TSP	Qbs	~	56		24	28	28	28	28	28	28			
M. Potash	Qbs	~	14		~	~	~	~	~	~	~			
- Pesticides	gal.	~	0.2		~	~	~	~	~	~	~			
- Herbicides	gal.	~	~		~	~	~	~	~	~	~			
- Labor														
Family	day	27.0	31.8	44.4	44.4	66.6	66.6	66.6	28.8	28.8	30.0			
Hired	day	18.0	21.2	29.6	29.6	44.4	44.4	44.4	19.2	19.2	20.0			
Total	day	45.0	53.0	74.0	74.0	111.0	111.0	111.0	48.0	48.0	50.0			
- Animal														
Family	day	9.0	9.6	6.6	6.6	13.2	13.2	13.2	7.8	7.8	9.6			
Hired	day	6.0	6.4	4.4	4.4	8.8	8.8	8.8	5.2	5.2	6.4			
Total	day	15.0	16.0	11.0	11.0	22.0	22.0	22.0	13.0	13.0	16.0			
- Machinery	hour	~	~	L.S.	L.S.	~	~	~	~	~	~			

PROPOSED INPUT REQUIREMENT WITH IRRIGATION

Item	Unit	Paddy (HYV)		Jute		Groundnuts		(Unit: per acre)	
		Wet	Dry	Pre-monsoon	Winter	Sesame	Late	Matpe	
Yield	lbs	4,639	5,086	1,428	1,544	678	892		
Input									
- Seed	lbs	46	46	10	100	7	18		
- Fertilizer									
Urea	lbs	134	146	168	56	28	28		
TSP	lbs	67	78	56	56	56	56		
M. Potash	lbs	22	33	-	14	14	14		
- Pesticides	gal.	0.5	0.5	0.2	0.2	0.2	0.2		
- Herbicides	gal.	0.2	0.2	"	"	"	"		
- Labor									
Family	day	47.2	47.2	69.6	101.6	43.2	47.2		
Hired	day	11.8	11.8	17.4	25.4	10.8	11.8		
Total	day	59.0	59.0	87.0	127.0	54.0	59.0		
- Animal									
Family	day	7.0	3.5	6.0	8.0	5.0	9.0		
Hired	day	-	3.5	-	-	-	-		
Total	day	7.0	7.0	6.0	8.0	5.0	9.0		
- Machinery	hour	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.		



**Appendix K-5 ECONOMIC EVALUATION OF IRRIGATION PROJECTS**

**1. Weyi Reservoir**

**\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\***

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	6120322.	3407225.	2059259.	1328334.	901101.	635458.	461917.	343962.	261210.	201635.
PW OF COST	850574.	697607.	599819.	529801.	475630.	431568.	394557.	362793.	335128.	310771.
B/C RATIO	7.196	4.884	3.433	2.507	1.895	1.472	1.171	0.948	0.779	0.649

**INTERNAL RATE OF RETURN JUST EQUAL 19.45 %**

## 2. Taunyo Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	3505294.	1951416.	1179400.	760786.	516088.	363946.	264553.	196997.	149603.	115482.
PW OF COST	513405.	421075.	362051.	319788.	287091.	260495.	238154.	218982.	202284.	187582.
B/C RATIO	6.828	4.634	3.258	2.379	1.798	1.397	1.111	0.900	0.740	0.616

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## 3. Bawbin Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(CURRENCY: KYAT THOUSANDS)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	2411095.	1342275.	811250.	523303.	354988.	250338.	181972.	135503.	102903.	79434.
PW OF COST	527518.	432651.	372004.	328580.	294984.	267657.	244702.	225003.	207845.	192739.
B/C RATIO	4.571	3.102	2.181	1.593	1.203	0.935	0.744	0.602	0.495	0.412

INTERNAL RATE OF RETURN JUST EQUAL 14.44 %

## 4. Gamon Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSANDS)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	750333.	417716.	252459.	162850.	110471.	77904.	56630.	42169.	32024.	24720.
PW OF COST	293010.	240313.	206626.	182505.	163844.	148665.	135915.	124973.	115443.	107053.
B/C RATIO	2.561	1.738	1.222	0.892	0.674	0.524	0.417	0.337	0.277	0.231
INTERNAL RATE OF RETURN	-----	-----	-----	JUST EQUAL	9.25 %					

5. Minbla Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSANDS)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	1333939.	742618.	448824.	289517.	196397.	138499.	100675.	74967.	56932.	43947.
PW OF COST	301061.	246920.	212308.	187525.	168352.	152756.	139655.	128412.	118621.	109999.
B/C RATIO	4.431	3.008	2.114	1.544	1.167	0.907	0.721	0.584	0.480	0.400

INTERNAL RATE OF RETURN	JUST EQUAL	14.16 %
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## 6. Kadinbilin Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSANDS)

DISCOUNT RATE 2.50 % 5.00 % 7.50 % 10.00 % 12.50 % 15.00 % 17.50 % 20.00 % 22.50 % 25.00 %

PW OF BENEFIT 3167810. 1763540. 1065857. 687540. 466400. 328906. 239083. 178031. 135199. 104364.

PW OF COST 455138. 373284. 320957. 283491. 254504. 230927. 211122. 194126. 179323. 166290.

B/C RATIO 6.960 4.724 3.321 2.425 1.833 1.424 1.132 0.917 0.754 0.628

INTERNAL RATE OF RETURN ----- JUST EQUAL 19.09 %

7. Thegaw Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSANDS)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	2150930.	1197440.	723714.	466837.	316684.	223326.	162336.	120882.	91800.	70863.
PW OF COST	342606.	280993.	241604.	213401.	191581.	173834.	158925.	146131.	134988.	125177.
B/C RATIO	6.278	4.261	2.995	2.188	1.653	1.285	1.021	0.827	0.680	0.566

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O 8: Thonze Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSANDS)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	6577141.	3661539.	2212957.	1427484.	968358.	482888.	496394.	369635.	280707.	216685.
PW OF COST	845542.	693478.	596268.	526663.	472813.	429012.	392219.	360643.	335142.	308930.
B/C RATIO	7.779	5.280	3.711	2.710	2.048	1.592	1.266	1.025	0.843	0.701

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## 9. Okkan Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	4919874.	2738927.	1655349.	1067801.	724358.	510818.	371315.	276497.	209976.	162086.
PW OF COST	6622336.	543138.	467002.	412487.	370312.	336006.	307189.	282459.	260920.	241957.
B/C RATIO	7.429	5.043	3.545	2.589	1.956	1.520	1.209	0.979	0.805	0.670

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INTERNAL RATE OF RETURN ----- JUST EQUAL 19.79 %

## 10. Nyanggging Reservoir

## \*\*\* \* CALCULATION OF INTERNAL RATE OF RETURN \*\*\* \*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	258685.	144011.	87038.	56145.	38086.	26859.	19524.	14538.	11040.	8522.
PW OF COST	56255.	46140.	39673.	35042.	31460.	28545.	26097.	23997.	22167.	20556.
B/C RATIO	4.598	3.121	2.194	1.602	1.211	0.941	0.748	0.606	0.498	0.415

INTERNAL RATE OF RETURN ----- JUST EQUAL 14.49 %

## 11. Buyo Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE 2.50 % 5.00 % 7.50 % 10.00 % 12.50 % 15.00 % 17.50 % 20.00 % 22.50 % 25.00 %

PW OF BENEFIT 905494. 504095. 304665. 196526. 133315. 94014. 68339. 50889. 38646. 29832.

PW OF COST 224442. 184077. 158274. 139797. 125503. 113876. 104110. 95729. 88429. 82002.

B/C RATIO 4.034 2.738 1.925 1.406 1.062 0.826 0.656 0.532 0.437 0.364

C 12. Thaledan Reservoir

\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	462057.	257230.	155465.	100283.	68029.	47974.	34873.	25968.	19720.	15223.
B/C RATIO	5.921	4.019	2.825	2.063	1.559	1.212	0.963	0.780	0.641	0.534

## 13. Alonmoyak Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	1478297.	822984.	497395.	320849.	217651.	153488.	111571.	83080.	63093.	48703.
PW OF COST	332112.	272387.	234206.	206868.	185716.	168512.	154060.	141658.	130856.	121345.
B/C RATIO	4.451	3.021	2.124	1.551	1.172	0.911	0.724	0.586	0.482	0.401

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## 14. North Kun Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	979386.	545232.	329527.	212564.	144195.	101686.	73916.	55062.	41799.	32266.
PW OF COST	241787.	198302.	170504.	150600.	135201.	122676.	112155.	103126.	95262.	88338.
B/C RATIO	4.051	2.749	1.933	1.411	1.067	0.829	0.659	0.534	0.439	0.365

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15. Phatshin Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	554443.	308663.	186549.	120335.	81630.	57566.	41845.	31160.	23663.	18266.
PW OF COST	160306.	131478.	113049.	99853.	89643.	81339.	74364.	68377.	63164.	58573.
B/C RATIO	3.459	2.348	1.650	1.205	0.911	0.708	0.563	0.456	0.375	0.312

INTERNAL RATE OF RETURN ----- JUST EQUAL 11.80 %

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## 16. Mamyia Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	1501929.	836139.	505346.	325977.	221130.	155941.	113354.	84408.	64102.	49482.
PW OF COST	625316.	512862.	440973.	389497.	349673.	317279.	290070.	266718.	246379.	228473.
B/C RATIO	2.402	1.630	1.146	0.837	0.632	0.491	0.391	0.316	0.260	0.217

INTERNAL RATE OF RETURN ----- JUST EQUAL 8.76 %

17. Kyanin Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE    2.50 %    5.00 %    7.50 %    10.00 %    12.50 %    15.00 %    17.50 %    20.00 %    22.50 %    25.00 %

PW OF BENEFIT    2897754.    1613200.    974994.    628927.    426640.    300867.    218701.    162853.    123674.    95467.

PW OF COST    599106.    491364.    422487.    373170.    335015.    303979.    277910.    255537.    236051.    218895.

B/C RATIO    4.837    3.283    2.308    1.685    1.273    0.990    0.787    0.637    0.524    0.436

INTERNAL RATE OF RETURN ----- JUST EQUAL 14.92 %

## 18. Mankathu Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE    2.50 %    5.00 %    7.50 %    10.00 %    12.50 %    15.00 %    17.50 %    20.00 %    22.50 %    25.00 %

PW OF BENEFIT    2950700.    1642676.    992808.    640418.    434435.    306364.    222697.    165829.    125933.    97211.

PW OF COST    664441.    544950.    468561.    413865.    371549.    337129.    308217.    283404.    261793.    242767.

B/C RATIO    4.441    3.014    2.119    1.547    1.169    0.909    0.723    0.585    0.481    0.400

INTERNAL RATE OF RETURN    ----- JUST EQUAL 14.18 %.

## 19. Nankathu Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*  
 (UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	3533848.	1967316.	1189006.	766984.	520292.	366911.	266709.	198602.	150822.	116423.
PW OF COST	979423.	803286.	690685.	610060.	547684.	496947.	454329.	417753.	385898.	357851.
B/C RATIO	3.608	2.449	1.721	1.257	0.950	0.738	0.587	0.475	0.391	0.325

INTERNAL RATE OF RETURN ----- JUST EQUAL 12.13 %

## 20. Gyat Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	3533848.	1967316.	1189006.	766984.	520292.	366911.	266709.	198602.	150822.	116423.
PW OF COST	653562.	536025.	460886.	407085.	365462.	331606.	303166.	278760.	257503.	238788.
B/C RATIO	5.407	3.670	2.580	1.884	1.424	1.106	0.880	0.712	0.586	0.488

INTERNAL RATE OF RETURN JUST EQUAL 16.23 %

21. Mezili Reservoir

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE 2.50 % 5.00 % 7.50 % 10.00 % 12.50 % 15.00 % 17.50 % 20.00 % 22.50 % 25.00 %

PW OF BENEFIT 3357277. 1869019. 1129600. 728661. 494295. 348578. 253382. 188679. 143286. 110606.

PW OF COST 613624. 503272. 432726. 382213. 343133. 311346. 284645. 261730. 241771. 224200.

B/C RATIO 5.471 3.714 2.610 1.906 1.441 1.120 0.890 0.721 0.593 0.493

INTERNAL RATE OF RETURN JUST EQUAL 16.36 %

## Q 22. South Kun Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

C O (UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	3427850.	1908305.	1153341.	743978.	504686.	355905.	258709.	192645.	146298.	112931.
PW OF COST	605166.	496332.	426757.	376941.	338399.	307050.	280717.	258117.	238435.	221106.
B/C RATIO	5.664	3.845	2.703	1.974	1.491	1.159	0.922	0.746	0.614	0.511

INTERNAL RATE OF RETURN JUST EQUAL 16.72 %

## 23-Kyetpaung-Reservoir

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE 2.50 % 5.00 % 7.50 % 10.00 % 12.50 % 15.00 % 17.50 % 20.00 % 22.50 % 25.00 %

PW OF BENEFIT 353333. 196703. 118883. 76686. 52021. 36686. 26667. 19857. 15080. 11641.

PW OF COST 167972. 137765. 118454. 104626. 93929. 85227. 77918. 71645. 66182. 61373.

B/C RATIO 2.104 1.428 1.004 0.733 0.554 0.430 0.342 0.277 0.228 0.190

INTERNAL RATE OF RETURN JUST EQUAL 7.54 %



Appendix K-6 ECONOMIC EVALUATION OF IDENTIFIED PROJECTS (IRRIGATION)

1. West Pegu Yoma I

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*  
 (UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	14886065.	7840374.	4450449.	2684797.	1699875.	1118213.	758388.	527217.	374084.	270040.
PW OF COST	2136180.	1679124.	1384049.	1173667.	1013423.	885990.	781784.	694906.	621466.	558721.
B/C RATIO	6.969	4.669	3.216	2.288	1.677	1.262	0.970	0.759	0.602	0.483

INTERNAL RATE OF RETURN ----- JUST EQUAL 17.27 %

## 2. West Pegu Yoma II

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

	DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
O	PW OF BENEFIT	8939473.	4810771.	2798319.	1733007.	1127480.	762413.	531561.	379847.	276991.	205450.
O	PW OF COST	1313327.	1054565.	887750.	768178.	676142.	601977.	540416.	488285.	443519.	404669.
O	B/C RATIO	6.807	4.562	3.152	2.256	1.668	1.267	0.984	0.778	0.625	0.508

INTERNAL RATE OF RETURN ----- JUST EQUAL 17.37 %

## 3. West Pegu Yoma III

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	4495375.	2502603.	1512524.	975673.	661858.	466744.	339277.	252640.	191859.	148101.
PW OF COST	1121583.	919887.	790941.	698613.	627182.	569080.	520276.	478391.	441912.	409794.
B/C RATIO	4.008	2.721	1.912	1.397	1.055	0.820	0.652	0.528	0.434	0.361
INTERNAL RATE OF RETURN						JUST EQUAL	13.13 %			

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## 4. East Arakan Yoma I

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

							(UNIT: KYAT THOUSAND)			
DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	9653928.	5084645.	2886207.	1741145.	1102406.	725191.	491831.	341911.	242601.	175127.
PW OF COST	2657614.	2089006.	1721908.	1460179.	1260795.	1102256.	972628.	864543.	773176.	695114.
B/C RATIO	3.633	2.434	1.676	1.192	0.874	0.658	0.506	0.395	0.314	0.252

INTERNAL RATE OF RETURN JUST EQUAL 11.60 %

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## 5. East Arakan Yoma II

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE 2.50 % 5.00 % 7.50 % 10.00 % 12.50 % 15.00 % 17.50 % 20.00 % 22.50 % 25.00 %

PW OF BENEFIT 3012122. 1676868. 1013474. 653749. 443478. 312741. 227333. 169281. 128555. 99235.

PW OF COST 734208. 602171. 51762. 457323. 410564. 372530. 340582. 313163. 289283. 268258.

B/C RATIO 4.103 2.785 1.957 1.430 1.080 0.840 0.667 0.541 0.444 0.370

INTERNAL RATE OF RETURN ----- JUST EQUAL 13.39 %

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## 6. East Arakan Yoma III

## \*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	9447607.	4975979.	2824526.	1703934.	1078847.	709692.	481319.	334604.	237416.	171384.
PW OF COST	1890463.	1485985.	1224847.	1038689.	896858.	784084.	691862.	614977.	549985.	494457.
B/C RATIO	4.998	3.349	2.306	1.640	1.203	0.905	0.696	0.544	0.432	0.347

7. East Arakan Yoma IV

\*\*\*\*\* CALCULATION OF INTERNAL RATE OF RETURN \*\*\*\*\*

(UNIT: KYAT THOUSAND)

DISCOUNT RATE	2.50 %	5.00 %	7.50 %	10.00 %	12.50 %	15.00 %	17.50 %	20.00 %	22.50 %	25.00 %
PW OF BENEFIT	1626227.	905339.	547169.	352956.	239431.	168847.	122735.	91394.	69406.	53577.
PW OF COST	358730.	294219.	252978.	223447.	200601.	182018.	166408.	153011.	141344.	131071.
B/C RATIO	4.533	3.077	2.163	1.580	1.194	0.928	0.738	0.597	0.491	0.409
INTERNAL RATE OF RETURN	-----	-----	-----	-----	-----	JUST EQUAL	14.37 %	-----	-----	-----



Appendix K-7 NET FARM INCOME BY CROP

Crop: Paddy

	(Unit: Kyat per acre)					
	Ordinary Variety		HYV (Wet)		HYV (Dry)	
	P	W	P	W	W	W
Yield (BKT)	38.2	40.0	63.6	75.0	100.0	110.0
Unit Price (Ks/BKT)	9	9	9	9	9	9
<u>Gross Farm Income</u>	<u>343.8</u>	<u>360.0</u>	<u>572.4</u>	<u>675.0</u>	<u>900.0</u>	<u>990.0</u>
<u>Expenditures</u>						
- Materials						
Seed	13.5	13.5	13.5	13.5	9	9
Urea	-	1.5	18.0	24.0	28.7	31.3
T.S.P.	-	-	16.8	33.5	40.1	46.7
M. Potash	-	-	-	4.3	6.7	10.0
Pesticides	-	-	-	46.0	115.0	115.0
Herbicides	-	-	-	-	23.2	23.2
Miscellaneous	2.7	3.0	9.7	24.7	44.5	47.0
<u>Sub-total</u>	<u>16.2</u>	<u>18.0</u>	<u>58.0</u>	<u>148.0</u>	<u>267.2</u>	<u>282.2</u>
- Hired Labor						
Labor	117.6	126.0	140.0	148.4	82.6	82.6
Draft Cattle	72.8	78.0	78.0	83.2	-	45.5
<u>Sub-total</u>	<u>190.4</u>	<u>204.0</u>	<u>218.0</u>	<u>231.6</u>	<u>82.6</u>	<u>130.1</u>
- Machinery	-	-	-	-	176.0	153.0
- Land Tax	2.0	2.0	2.0	2.0	6.0	6.0
<u>- Total</u>	<u>208.6</u>	<u>224.0</u>	<u>278.0</u>	<u>381.6</u>	<u>531.8</u>	<u>571.3</u>
<u>Net Farm Income</u>	<u>135.2</u>	<u>136.0</u>	<u>294.4</u>	<u>293.4</u>	<u>368.2</u>	<u>418.7</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

NET FARM INCOME BY CROP

Crop: Groundnut

(Unit: Kyat per acre)

	Winter			Rain	
	P	W	W	P	W
Yield (BKT)	30.4	35.0	60.0	22.2	27.5
Unit Price (Ks/BKT)	47	47	47	47	47
Gross Farm Income	<u>1,428.8</u>	<u>1,645.0</u>	<u>2,820.0</u>	<u>1,043.4</u>	<u>1,292.5</u>
<u>Expenditures</u>					
- Materials					
Seed	282.0	282.0	188.0	282.0	282.0
Urea	1.1	6.0	12.0	1.1	6.0
T.S.P.	3.0	16.8	33.5	3.0	16.8
M. Potash	-	-	4.3	-	-
Pesticides	-	-	46.0	-	-
Herbicides	-	-	-	-	-
Miscellaneous	57.2	61.0	56.8	57.2	61.0
Sub-total	<u>343.3</u>	<u>365.8</u>	<u>340.1</u>	<u>343.3</u>	<u>365.8</u>
- Farm Labor					
Laborer	282.8	310.8	177.8	226.8	310.8
Draft Cattle	114.4	114.4	-	114.4	114.4
Sub-total	<u>397.2</u>	<u>425.2</u>	<u>177.8</u>	<u>341.2</u>	<u>425.2</u>
- Machinery	-	-	130.0	-	-
- Land Tax	2.0	2.0	6.0	2.0	2.0
- Total	<u>742.5</u>	<u>793.0</u>	<u>653.9</u>	<u>686.5</u>	<u>793.0</u>
Net Farm Income	<u>686.3</u>	<u>852.0</u>	<u>2,166.1</u>	<u>356.9</u>	<u>499.5</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

NET FARM INCOME BY CROP

Crop: Sesame

	(Unit: Kyat per acre)				
	Late			Early	
	<u>P</u>	<u>W</u>	<u>W</u>	<u>P</u>	<u>W</u>
<u>Yield (BKT)</u>	4.0	5.0	12.5	3.8	4.8
<u>Unit Price (Ks/BKT)</u>	158.5	158.5	158.5	158.5	158.5
<u>Gross Farm Income</u>	<u>634.0</u>	<u>792.5</u>	<u>1,981.3</u>	<u>602.3</u>	<u>760.8</u>
<u>Expenditures</u>					
- Materials					
Seed	29.4	29.4	20.5	29.4	29.4
Urea	-	3.0	6.0	-	3.0
T.S.P.	-	16.8	33.5	-	16.8
M. Potash	-	-	4.3	-	-
Pesticides	-	-	46.0	-	-
Herbicides	-	-	-	-	-
Miscellaneous	5.9	9.8	22.1	5.9	9.8
<u>Sub-total</u>	<u>35.3</u>	<u>59.0</u>	<u>132.4</u>	<u>35.3</u>	<u>59.0</u>
- Hired Labor					
Laborer	117.6	134.4	75.6	117.6	134.4
Draft Cattle	67.6	67.6	-	67.6	67.6
<u>Sub-total</u>	<u>185.2</u>	<u>202.0</u>	<u>75.6</u>	<u>185.2</u>	<u>202.0</u>
- Machinery	-	-	130.0	-	-
- Land Tax	2.0	2.0	6.0	2.0	2.0
<u>Total</u>	<u>222.5</u>	<u>263.0</u>	<u>344.0</u>	<u>222.5</u>	<u>263.0</u>
<u>Net Farm Income</u>	<u>411.5</u>	<u>529.5</u>	<u>1,637.3</u>	<u>379.8</u>	<u>497.8</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

NET FARM INCOME BY CROP

Crop: Matpe

(Unit: Kyat per acre)

	<u>Present</u>	<u>Without Irrigation</u>	<u>With Irrigation</u>
Yield (BKT/ac)	5.1	6.3	12.4
Unit Price (Ks/BKT)	50	50	50
<u>Gross Farm Income</u>	<u>255.0</u>	<u>315.0</u>	<u>620.0</u>
<u>Expenditures</u>			
- Materials			
Seed	12.5	12.5	12.5
Urea	-	3.0	6.0
T.S.P.	-	16.8	33.5
M. Potash	-	-	4.3
Pesticides	-	-	46.0
Herbicides	-	-	-
Miscellaneous	2.5	6.5	20.5
<u>SubTotal</u>	<u>15.0</u>	<u>38.8</u>	<u>123.2</u>
- Hired Labor			
Laborer	123.2	140.0	82.6
Draft Cattle	83.2	83.2	-
<u>Sub-total</u>	<u>206.4</u>	<u>223.2</u>	<u>82.6</u>
- Machinery	-	-	130.0
- Land Tax	2.0	2.0	6.0
<u>- Total</u>	<u>223.4</u>	<u>264.0</u>	<u>341.8</u>
<u>Net Farm Income</u>	<u>31.6</u>	<u>51.0</u>	<u>278.2</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4

NET FARM INCOME BY CROP

Crop: Jute

(Unit: Rs per acre)

	Pre-Monsoon			Monsoon	
	P	W	W	P	W
Yield (BKT)	194.1	240	400	165.9	210
Unit Price (Rs/BKT)	3.1	3.1	3.1	3.1	3.1
<u>Gross Farm Income</u>	<u>601.7</u>	<u>744.0</u>	<u>1,240.0</u>	<u>514.3</u>	<u>651.0</u>
<u>Expenditures</u>					
- Materials					
Seed	12.9	12.9	8.6	12.9	12.9
Urea	12.0	24.0	36.0	12.0	18.0
T.S.P.	9.6	21.5	33.5	9.6	14.4
M. Potash	-	-	-	-	-
Pesticides	-	-	46.0	-	-
Herbicides	-	-	-	-	-
Miscellaneous	6.9	11.7	24.8	6.9	9.1
<u>Sub-total</u>	<u>41.4</u>	<u>70.1</u>	<u>148.9</u>	<u>41.4</u>	<u>54.4</u>
- Hired Labor					
Laborer	196.0	207.2	121.8	196.0	207.2
Draft Cattle	57.2	57.2	-	57.2	57.2
<u>Sub-total</u>	<u>253.2</u>	<u>264.4</u>	<u>121.8</u>	<u>253.2</u>	<u>264.4</u>
- Machinery	30.0	30.0	130.0	30.0	30.0
- Land Tax	2.0	2.0	6.0	2.0	2.0
- <u>Total</u>	<u>326.6</u>	<u>366.5</u>	<u>406.7</u>	<u>326.6</u>	<u>350.8</u>
<u>Net Farm Income</u>	<u>275.1</u>	<u>377.5</u>	<u>833.3</u>	<u>187.7</u>	<u>300.2</u>

Note: P-Present, W-Without Irrigation, W-With Irrigation

See Appendix K-4





