

Table H-18 Summary of Crop Budget (Target Yield Accomplishment Stage)

Crops	Category of Settler	Price Category	Breakdown of the Production Cost						Total
			Seed	Fertilizers	Agro-chemicals	Machinery	Man-power	Others	
Wheat	S. Farmer	Financial	77	164	56	536	40	0	873
		Economic	147	176	50	842	23	0	1238
	L. Investor	Financial	77	164	56	402	29	0	728
		Economic	147	176	50	632	17	0	1022
Maize	L. Investor	Financial	48	230	41	148	38	0	505
		Economic	83	253	36	216	22	0	590
Barley	S. & L. Investor	Financial	29	103	56	86	28	0	300
		Economic	34	110	49	123	15	0	331
Sorghum	S. Farmer & Graduate	Financial	65	154	41	361	33	0	654
		Economic	91	167	36	548	20	0	862
	S. & L. Investor	Financial	65	154	41	271	26	0	557
		Economic	91	167	36	411	15	0	720
Berseem (L)	L. Investor	Financial	42	143	31	506	43	0	765
		Economic	126	141	28	722	25	0	1042
Berseem (S)	S. Farmer & Graduate	Financial	36	77	31	274	28	0	446
		Economic	36	81	28	343	16	0	504
	L. & S. Investor	Financial	36	77	31	206	24	0	374
		Economic	36	81	28	257	14	0	416
Fodder beet	L. Investor	Financial	96	169	135	506	81	0	987
		Economic	96	164	119	722	49	0	1150
Soybeans	S. & L. Investor	Financial	62	124	88	120	46	0	440
		Economic	102	125	77	169	27	0	500
Sesame	S. & L. Investor	Financial	13	81	167	346	36	0	643
		Economic	13	120	147	492	22	0	794
Broad beans	S. Farmer & Graduate	Financial	108	108	97	262	227	0	802
		Economic	186	104	86	385	135	0	896
Tomato (F)	S. Farmer & Graduate	Financial	1000	827	377	2107	258	2000	6569
		Economic	1000	847	331	2796	155	1584	6713
Tomato (P)	S. Investor	Financial	500	462	226	340	115	300	1943
		Economic	500	472	199	483	69	240	1963
Cantaloupe	S. Farmer & Graduate	Financial	36	109	180	836	206	300	1667
		Economic	36	103	158	1192	141	240	1870
Water melon	S. Farmer	Financial	50	222	360	1077	235	300	2244
		Economic	50	217	316	1378	124	240	2325
Squash	Graduate	Financial	200	81	200	1083	179	0	1723
		Economic	200	83	176	1378	107	0	1944
Green pepper	S. Farmer & Graduate	Financial	500	374	200	1008	147	0	2229
		Economic	500	389	176	1334	89	0	2488
Cabbage	S. & L. Investor	Financial	25	190	433	273	119	300	1340
		Economic	25	196	381	514	71	240	1427
Potato	S. & L. Investor	Financial	1632	489	70	457	42	0	2690
		Economic	1632	505	62	655	25	0	2879
Onion	S. & L. Investor	Financial	30	293	73	287	71	300	1054
		Economic	30	303	64	393	42	240	1072
Cumin	S. Farmer & Graduate	Financial	120	451	150	552	135	0	1408
		Economic	120	433	132	620	80	0	1385
	S. Investor	Financial	120	451	150	414	115	0	1250
		Economic	120	433	132	465	68	0	1218
Almond (Initial Investment)	L. Investor	Financial	450	22	540	35	127	0	1174
		Economic	450	22	475	49	76	0	1072
Almond (Maintenance)	L. Investor	Financial	0	222	540	250	169	0	1181
		Economic	0	228	475	354	101	0	1158
Peach (Initial Investment)	Graduate	Financial	600	77	360	558	245	0	1840
		Economic	600	77	316	718	147	0	1858
Peach (Maintenance)	Graduate	Financial	0	208	360	498	258	0	1324
		Economic	0	204	316	644	155	0	1319
Grape (Initial Investment)	S. & L. Investor	Financial	375	39	250	35	328	3000	4027
		Economic	375	39	220	49	197	2400	3280
Grape (Maintenance)	S. & L. Investor	Financial	0	233	250	324	474	0	1281
		Economic	0	237	220	461	284	0	1202
Olive (Initial Investment)	S. & L. Investor	Financial	600	22	540	35	384	0	1581
		Economic	600	22	475	49	230	0	1376
Olive (Maintenance)	S. & L. Investor	Financial	0	291	540	285	347	0	1463
		Economic	0	298	475	405	209	0	1397
Orange (Initial Investment)	S. & L. Investor	Financial	600	66	230	35	345	0	1276
		Economic	600	66	202	49	207	0	1124
Orange (Maintenance)	S. & L. Investor	Financial	0	154	230	361	300	0	988
		Economic	0	159	202	429	182	0	972



Table H-19 Summary of Annual Agricultural Production Benefits (Economic Price)

(1) Crops (Continued)

Crops	Category of Settlers	Year in Production	Unit Yield (ton/fed)	MAIN PRODUCTS			Total Area (fed/Year)	Total Return (LE/year)			
				Farm-gate Price (LE/t)	Gross Return (LE/fed)	Production Cost (LE/fed)					
Cantaloupe	S. Farmer & Graduate	1st	5	800	4000	1650	2320	16,100,800			
		2nd	6.5		5200	1827	3393	23,547,420			
		3rd	8		6400	2018	4382	30,411,080			
		4th	9		7200	2650	5140	35,671,600			
		5th	9		7200	2145	5055	35,081,700			
		From 5th on	10		8000	2230	5770	40,043,800			
Watermelon	S. Farmer	1st	5	510	2550	2099	541	2,750,560			
		2nd	6.5		3315	2082	1233	5,129,280			
		3rd	8		4080	2209	1877	7,808,320			
		4th	9		4590	2227	2363	9,830,080			
		5th	9		4590	2276	2314	9,626,240			
		From 5th on	10		5100	2325	2725	11,544,000			
Squash	Graduate	1st	7	600	2400	1636	764	2,723,920			
		2nd	5.2		3120	1707	1413	3,928,140			
		3rd	6.4		3840	1826	2014	5,598,920			
		4th	7.2		4320	1873	2447	6,802,660			
		From 5th on	8		4800	1944	2856	7,939,680			
		Green pepper	S. Farmer & Graduate	1st	3.5	700	2450	2193	257	1,778,440	
2nd	4.55				3185	2251	924	6,394,080			
3rd	5.6				3920	2374	1545	10,698,320			
4th	6.3				4410	2420	1990	13,770,800			
From 5th on	7				4900	2488	2412	16,631,040			
Cabbage	S & I Investor			1st	12	150	1800	1275	525	4,126,500	
		2nd	13		1950	1310	640	5,030,400			
		3rd	16		2400	1368	1032	8,111,520			
		4th	18		2700	1392	1308	10,280,880			
		From 5th on	20		3000	1427	1579	12,363,780			
		Potato	S & I Investor	1st	7.2	544	3916.8	2582	1334.8	4390	6,650,652
2nd	7.8				4243.2	2650	1593.2		7,950,068		
3rd	9.6				5222.4	2764	2458.4		12,267,416		
4th	10.8				5875.2	2810	3065.2		15,285,348		
From 5th on	12				6528	2879	3649		18,208,516		
Onion	S & I Investor			1st	8.45	312	2012.4	877	1135.4	7860	8,924,244
		2nd	6.99		2160.88	901	1279.88		10,059,857		
		3rd	7.53		2349.36	958	1391.36		10,806,090		
		4th	8.6		2683.2	980	1703.2		13,387,152		
		5th	9.68		3020.16	1079	1991.16		15,650,519		
		From 5th on	10.75		3354	1072	2282		17,938,520		
Cumin	S. Farmer & Graduate	1st	0.44	2000	880	1077	-197	6940	-1,357,180		
		2nd	0.55		1100	1098	2		43,880		
		3rd	0.66		1320	1136	184		1,276,960		
		4th	0.77		1540	1192	348		2,415,120		
		5th	0.88		1760	1231	529		3,671,260		
		6th	0.94		1880	1288	592		4,108,480		
		7th	0.99		1990	1327	653		4,531,820		
		From 8th on	1.1		2200	1365	815		5,655,100		
	S. Investor	1st	0.44		880	847	-57	2035	-136,010		
		2nd	0.55		1100	966	134		272,020		
		3rd	0.66		1320	999	321		651,630		
		4th	0.77		1540	1048	492		998,760		
		5th	0.88		1760	1083	677		1,374,310		
		6th	0.94		1880	1133	747		1,516,410		
From 8th on	0.99		1980	1167	813		1,650,390				
Almond	I. Investor	1st	0	1500	0	1075	-1075	4160	-4,359,570		
		2nd	0		0	816	-816		-3,394,560		
		3rd	0		0	816	-816		-3,394,560		
		4th	0		0	816	-816		-3,394,560		
		5th	1		1500	850	650		2,704,000		
		6th	2		3000	902	2098		8,727,680		
		7th	3.2		4800	987	3813		15,862,080		
		8th	4		6000	1090	4310		20,425,600		
		From 9th on	5		7500	1158	6342		26,382,720		
		Peach	Graduate	1st	0	540	0	1803	-1803	1390	-2,506,170
				2nd	0		0	811	-811		-1,127,290
				3rd	0		0	821	-821		-1,141,190
				4th	0		0	840	-840		-1,167,600
				5th	1.45		1363	904	459		638,010
6th	2.91				2735.4	973	1762.4		2,449,736		
7th	4.36				4098.4	1068	3010.4		4,184,456		
8th	5.82				5470.8	1319	4151.8		5,771,002		
9th-25th	7.27				6833.8	1803	5030.8		6,992,812		
26th	0				0	1803	-1803		-2,506,170		
27th	0				0	811	-811		-1,127,290		
28th	0				0	821	-821		-1,141,190		
29th	0				0	840	-840		-1,167,600		
30th	1.45				1363	904	459		638,010		
31st	2.91		2735.4	973	1762.4		2,449,736				
32nd	4.36		4098.4	1068	3010.4		4,184,456				
33rd	5.82		5470.8	1319	4151.8		5,771,002				
34th-50th	7.27		6833.8	1803	5030.8		6,992,812				

**Table H-19 Summary of Annual Agricultural Production Benefits (Economic Pri**

(1) Crops (Continued)

Crops	Category of Settlers	Year in Production	Yield (ton/fed)	Farm-gate Price (L/E/ton)	Gross Return (L/E/fed)	Production Cost (L/E/fed)	Net Return (L/E/fed)	Total Area (fed/Year)	Total Return (L/E/Year)
Grape	S & L	1st	0	924	0	3290	-3290	5830	-19,130,700
		Investor	2nd	0	0	658	-658		
	3rd	0	0	658	-658				
	4th	0	0	658	-658				
	5th	1.62	1496.88	670	826.88				
	6th	3.24	2993.76	689	2304.76				
	7th	4.86	4490.64	719	3771.64				
	8th	6.48	5987.52	756	5231.52				
	From 9th on	8.1	7484.4	789	6704.4				
Olive	S & L	1st	0	1100	0	1366	-1366	5830	-8,080,380
		Investor	2nd	0	0	906	-906		
	3rd	0	0	906	-906				
	4th	0	0	906	-906				
	5th	1.4	1540	906	634				
	6th	2.8	3080	935	2145				
	7th	4.2	4620	963	3657				
	8th	5.6	6160	998	5162				
	From 9th on	7	7700	1021	6679				
Orange	S & L	1st	0	1050	0	1134	-1134	5830	-6,611,220
		Investor	2nd	0	0	495	-495		
	3rd	0	0	495	-495				
	4th	0	0	495	-495				
	5th	1.43	1554	504	1050				
	6th	2.96	3108	517	2591				
	7th	4.44	4662	538	4124				
	8th	5.92	6216	564	5652				
	From 9th on	7.4	7770	581	7189				

**Table H-19 Summary of Annual Agricultural Production Benefit (Economic Price)**

(2) Livestock - Cattle Fattening

Category of Settlers	Small Farmer	Graduate	Small Investor	Large Investor	Total
Head of Cattle	9,990	4,440	8,640	34,730	55,800
Head to be marketed	4,995	2,220	3,320	17,365	27,900
Liveweight of animal (kg)	350	350	500	500	1,700
Price of cattle (L/E/kg)	4.53	4.53	4.53	4.53	18
Gross Return (L/E/year)	7,919,573	519,810	519,600	9,331,725	58,290,908
Cost (L/E/year)					
- Depr. of capital	210,152	94,416	149,934	709,959	1,155,461
- Purchase of calf	1,891,773	849,927	281,600	6,598,700	10,632,000
- Feed	3,604,177	709,123	385,758	6,104,168	36,000,227
- Veterinary service	175,236	78,730	113,696	611,248	978,912
- Man-power	717,452	322,347	314,098	1,856,639	3,210,766
- Sale of manure (-)	410,714	184,523	273,900	4,326,125	15,195,267
Total	6,388,108	2,870,020	5,942,187	21,551,789	36,752,104
Net Return	1,531,465	649,790	1,577,813	17,779,936	21,538,804

(2) Livestock - Dairy Production

Category of Settler	Large Investor
Head of cow	31,556
Milk Production (ton/year)	128,224
Price of milk (L/E/ton)	1,278
Gross Return (L/E/year)	161,314,272
Cost (L/E/year)	
- Depr. of capital	17,973,168
- Purchase of heifer	12,247,672
- Feed	42,098,460
- Veterinary service	555,385
- Labor	1,814,865
- Sale of manure (-)	1,301,683
- Sale of calves (-)	19,380,906
- Sale of cow (-)	1,659,864
Total	52,997,095
Net Return	108,817,177





Table H-21 Annual Benefits of Agro-based Enterprises

Unit: LE

Year in Order	Marketing Center	Agro-industry						Grand Total
		Concentrates Feed	Tomate Paste	Olive Oil	Slaughter House	Milk Process	Total	
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	13,645,320	0	0	0	0	0	0	13,645,320
7	16,249,732	0	0	0	0	0	0	16,249,732
8	21,832,512	7,280,320	0	0	0	0	7,280,320	29,112,832
9	24,997,536	8,190,360	3,088,800	0	0	0	11,279,160	36,276,696
10	26,712,737	9,100,400	3,432,000	0	0	0	12,532,400	39,245,137
11	27,670,861	9,100,400	3,432,000	0	0	0	12,532,400	40,203,261
12	27,860,318	9,100,400	3,432,000	0	0	0	12,532,400	40,392,718
13	28,051,081	9,100,400	3,432,000	0	29,675,160	11,578,680	53,786,240	81,837,321
14	28,240,538	9,100,400	3,432,000	0	29,675,160	11,578,680	53,786,240	82,026,778
15	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
16	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
17	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
18	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
19	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
20	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
21	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
22	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
23	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
24	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
25	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
26	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
27	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
28	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
29	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
30	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
31	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
32	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
33	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
34	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
35	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
36	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
37	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
38	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
39	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
40	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
41	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
42	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
43	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
44	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
45	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
46	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
47	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
48	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
49	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698
50	28,240,538	9,100,400	3,432,000	2,545,920	29,675,160	11,578,680	56,332,160	84,572,698

Table H-22 Annual Disbursement Schedule of Project's Cost  
(Economic Price)

Year in Order	Capital Costs	Recurrent			Total
		Replacement	O/M		
-5	1,442,294	0	0	0	1,442,294
-4	2,163,679	0	0	0	2,163,679
-3	5,743,622	0	0	0	5,743,622
-2	10,471,339	0	0	0	10,471,339
-1	23,630,405	0	0	0	23,630,405
0	36,730,346	0	0	0	36,730,346
1	51,723,780	0	0	0	51,723,780
2	198,835,429	0	4,324,760	4,324,760	203,160,189
3	644,037,290	0	8,944,740	8,944,740	652,982,030
4	583,299,692	0	11,100,330	11,100,330	594,400,022
5	625,201,253	0	28,438,370	28,438,370	653,639,623
6	344,826,152	0	74,844,246	74,844,246	419,670,398
7	38,330,640	0	87,782,027	87,782,027	126,112,667
8	32,048,331	0	88,506,367	88,506,367	120,554,698
9	6,153,824	192,000	88,965,553	89,157,553	95,311,377
10	10,452,291	0	89,255,840	89,255,840	99,708,131
11	27,163,498	0	90,288,516	90,288,516	117,452,014
12	23,337,409	32,410,170	91,415,359	123,825,529	147,162,938
13	14,827,521	0	92,590,331	92,590,331	107,417,852
14	14,827,521	1,545,030	92,788,007	94,333,037	109,160,558
15	0	0	97,633,545	97,633,545	97,633,545
16	10,195,724	0	97,640,545	97,640,545	107,836,269
17	0	0	97,647,450	97,647,450	97,647,450
18	0	0	97,647,450	97,647,450	97,647,450
19	0	110,003,640	97,647,450	207,651,090	207,651,090
20	0	32,410,170	97,647,450	130,057,620	130,057,620
21	0	0	97,647,450	97,647,450	97,647,450
22	0	0	97,647,450	97,647,450	97,647,450
23	0	0	97,647,450	97,647,450	97,647,450
24	0	1,540,530	97,647,450	99,187,980	99,187,980
25	0	0	97,647,450	97,647,450	97,647,450
26	0	0	97,647,450	97,647,450	97,647,450
27	0	0	97,647,450	97,647,450	97,647,450
28	0	32,410,170	97,647,450	130,057,620	130,057,620
29	0	342,271,130	97,647,450	439,918,580	439,918,580
30	0	0	97,647,450	97,647,450	97,647,450
31	0	18,313,600	97,647,450	115,961,050	115,961,050
32	0	16,417,060	97,647,450	114,064,510	114,064,510
33	0	95,225,980	97,647,450	192,873,430	192,873,430
34	0	190,799,210	97,647,450	288,446,660	288,446,660
35	0	24,381,610	97,647,450	122,029,060	122,029,060
36	0	43,641,030	97,647,450	141,288,480	141,288,480
37	0	12,259,720	97,647,450	109,907,170	109,907,170
38	0	9,324,830	97,647,450	106,972,280	106,972,280
39	0	9,461,560	97,647,450	107,109,010	107,109,010
40	0	0	97,647,450	97,647,450	97,647,450
41	0	0	97,647,450	97,647,450	97,647,450
42	0	0	97,647,450	97,647,450	97,647,450
43	0	0	97,647,450	97,647,450	97,647,450
44	0	34,165,950	97,647,450	131,813,400	131,813,400
45	0	0	97,647,450	97,647,450	97,647,450
46	0	0	97,647,450	97,647,450	97,647,450
47	0	0	97,647,450	97,647,450	97,647,450
48	0	0	97,647,450	97,647,450	97,647,450
49	0	109,971,640	97,647,450	207,619,090	207,619,090
50	0	-95,308,765	97,647,450	2,338,685	2,338,685



Table H - 23 Project's Cash Flow of Economic Costs and Benefits (Base Case)

Unit: LE

Year in Order	Costs				Benefits			Net Incremental Benefits
	Capital	Recurrent		Total	Agricultural Production	Agro-based Enterprise	Total	
		Replacement	O/M					
-5	1,442,294	0	0	1,442,294	0	0	0	-1,442,294
-4	2,163,679	0	0	2,163,679	0	0	0	-2,163,679
-3	5,743,622	0	0	5,743,622	0	0	0	-5,743,622
-2	10,471,339	0	0	10,471,339	0	0	0	-10,471,339
-1	23,630,405	0	0	23,630,405	0	0	0	-23,630,405
0	36,730,346	0	0	36,730,346	0	0	0	-36,730,346
1	51,723,780	0	0	51,723,780	0	0	0	-51,723,780
2	198,835,429	0	4,324,760	203,160,189	0	0	0	-203,160,189
3	644,037,290	0	8,944,740	652,982,030	0	0	0	-652,982,030
4	583,299,692	0	11,100,330	594,400,022	0	0	0	-594,400,022
5	625,201,253	0	28,438,370	653,639,623	0	0	0	-653,639,623
6	344,826,152	0	74,844,246	419,670,398	54,117,136	13,645,320	67,762,456	-351,907,942
7	38,330,640	0	87,782,027	126,112,667	83,845,629	16,249,732	100,095,361	-26,017,306
8	32,048,331	0	88,506,367	120,554,698	199,848,100	29,112,832	228,960,932	108,406,234
9	6,153,824	192,000	88,965,553	95,311,377	280,693,073	36,276,696	316,969,769	221,658,392
10	10,452,291	0	89,255,840	99,708,131	377,817,920	39,245,137	417,063,057	317,354,926
11	27,163,498	0	90,288,516	117,452,014	436,407,288	40,203,261	476,610,549	359,158,535
12	23,337,409	32,410,170	91,415,359	147,162,938	474,336,201	40,392,718	514,728,918	367,565,980
13	14,827,521	0	92,590,331	107,417,852	512,505,333	81,837,321	594,342,654	486,924,802
14	14,827,521	1,545,030	92,788,007	109,160,558	544,484,153	82,026,778	626,510,931	517,350,373
15	0	0	97,633,545	97,633,545	576,832,983	84,572,698	661,405,681	563,772,136
16	10,195,724	0	97,640,545	107,836,269	576,832,983	84,572,698	661,405,681	553,569,412
17	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
18	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
19	0	110,003,640	97,647,450	207,651,090	576,832,983	84,572,698	661,405,681	453,754,591
20	0	32,410,170	97,647,450	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
21	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
22	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
23	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
24	0	1,540,530	97,647,450	99,187,980	576,832,983	84,572,698	661,405,681	562,217,701
25	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
26	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
27	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
28	0	32,410,170	97,647,450	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
29	0	342,271,130	97,647,450	439,918,580	576,832,983	84,572,698	661,405,681	221,487,101
30	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
31	0	18,313,600	97,647,450	115,961,050	567,334,001	84,572,698	651,906,699	535,945,649
32	0	16,417,060	97,647,450	114,064,510	568,712,881	84,572,698	653,285,579	539,221,069
33	0	95,225,980	97,647,450	192,873,430	568,698,981	84,572,698	653,271,679	460,398,249
34	0	190,799,210	97,647,450	288,446,660	568,672,571	84,572,698	653,245,269	364,798,609
35	0	24,381,610	97,647,450	122,029,060	570,478,181	84,572,698	655,050,879	533,021,819
36	0	43,641,030	97,647,450	141,288,480	572,289,907	84,572,698	656,862,605	515,574,125
37	0	12,259,720	97,647,450	109,907,170	574,024,627	84,572,698	658,597,325	548,690,155
38	0	9,324,830	97,647,450	106,972,280	575,611,173	84,572,698	660,183,871	553,211,591
39	0	9,461,560	97,647,450	107,103,010	576,832,983	84,572,698	661,405,681	554,296,671
40	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
41	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
42	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
43	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
44	0	34,165,950	97,647,450	131,813,400	576,832,983	84,572,698	661,405,681	529,592,281
45	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
46	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
47	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
48	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
49	0	109,971,640	97,647,450	207,619,090	576,832,983	84,572,698	661,405,681	453,786,591
50	0	-95,308,765	97,647,450	2,338,685	576,832,983	84,572,698	661,405,681	659,066,996

EIRR = 11.25%  
NPV = 190,603,810

Table H-24 Sensitivity Analysis

(1) Case 1: Project Cost Hiked by 10%

Unit: LE

Year in Order	Costs			Benefits			Net Incremental Benefits	
	Capital	Recurrent O/M	Replacement	Total	Agricultural Production	Agro-based Enterprise		Total
-5	1,586,523	0	0	1,586,523	0	0	0	-1,586,523
-4	2,380,047	0	0	2,380,047	0	0	0	-2,380,047
-3	6,317,984	0	0	6,317,984	0	0	0	-6,317,984
-2	11,518,473	0	0	11,518,473	0	0	0	-11,518,473
-1	25,993,446	0	0	25,993,446	0	0	0	-25,993,446
0	40,403,381	0	0	40,403,381	0	0	0	-40,403,381
1	56,896,158	0	0	56,896,158	0	0	0	-56,896,158
2	218,718,972	0	4,757,236	223,476,208	0	0	0	-223,476,208
3	708,441,019	0	9,839,214	718,280,233	0	0	0	-718,280,233
4	641,629,661	0	12,210,363	653,840,024	0	0	0	-653,840,024
5	687,721,378	0	31,282,207	719,003,585	0	0	0	-719,003,585
6	379,308,767	0	82,328,671	461,637,438	54,117,136	13,645,320	67,762,456	-393,874,982
7	42,163,704	0	96,560,230	138,723,934	83,845,629	16,249,732	100,095,361	-38,628,572
8	35,253,164	0	97,357,004	132,610,168	199,848,100	29,112,832	228,960,932	96,350,764
9	6,769,206	211,200	97,862,108	104,842,515	280,693,073	36,276,696	316,969,769	212,127,254
10	11,497,520	0	98,181,424	109,678,944	377,817,920	39,245,137	417,063,057	307,384,112
11	29,879,848	0	99,317,368	129,197,215	436,407,288	40,203,261	476,610,549	347,413,334
12	25,671,150	35,651,187	100,556,895	161,879,232	474,336,201	40,392,718	514,728,918	352,849,687
13	16,310,273	0	101,849,364	118,159,637	512,505,333	81,837,321	594,342,654	476,183,017
14	16,310,273	1,699,533	192,066,808	120,076,614	544,484,153	82,026,778	626,510,931	506,434,317
15	0	0	107,396,900	107,396,900	576,832,983	84,572,698	661,405,681	554,008,782
16	11,215,296	0	107,404,600	118,619,896	576,832,983	84,572,698	661,405,681	542,785,786
17	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
18	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
19	0	121,004,004	107,412,195	228,416,199	576,832,983	84,572,698	661,405,681	432,989,482
20	0	35,651,187	107,412,195	143,063,382	576,832,983	84,572,698	661,405,681	518,342,299
21	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
22	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
23	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
24	0	1,694,583	107,412,195	109,106,778	576,832,983	84,572,698	661,405,681	552,298,903
25	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
26	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
27	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
28	0	35,651,187	107,412,195	143,063,382	576,832,983	84,572,698	661,405,681	518,342,299
29	0	376,498,243	107,412,195	483,910,438	576,832,983	84,572,698	661,405,681	177,495,243
30	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
31	0	20,144,960	107,412,195	127,557,155	567,334,001	84,572,698	651,906,699	524,349,544
32	0	18,058,766	107,412,195	125,470,961	568,712,881	84,572,698	653,285,579	527,814,618
33	0	104,748,578	107,412,195	212,160,773	568,698,981	84,572,698	653,271,679	441,110,906
34	0	209,879,131	107,412,195	317,291,326	568,672,571	84,572,698	653,245,269	335,953,943
35	0	26,819,771	107,412,195	134,231,966	570,478,181	84,572,698	655,050,879	520,818,913
36	0	48,005,133	107,412,195	155,417,328	572,289,907	84,572,698	656,862,605	501,445,277
37	0	13,485,692	107,412,195	120,897,887	574,024,627	84,572,698	658,597,325	537,699,438
38	0	10,257,313	107,412,195	117,669,508	575,611,173	84,572,698	660,183,871	542,514,363
39	0	10,407,716	107,412,195	117,819,911	576,832,983	84,572,698	661,405,681	543,585,770
40	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
41	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
42	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
43	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
44	0	37,582,545	107,412,195	144,994,740	576,832,983	84,572,698	661,405,681	516,410,941
45	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
46	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
47	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
48	0	0	107,412,195	107,412,195	576,832,983	84,572,698	661,405,681	553,993,486
49	0	120,968,804	107,412,195	228,380,999	576,832,983	84,572,698	661,405,681	433,024,682
50	0	-104,839,642	107,412,195	2,572,554	576,832,983	84,572,698	661,405,681	658,833,128

EIRR = 10.30%  
NPV = 49,175,534

Table H-24 Sensitivity Analysis

(2) Case 2: Project Benefits Reduced by 10%

Unit: LE

Year in Order	Costs				Benefits			Net Incremental Benefits
	Capital	Recurrent		Total	Agricultural Production	Agro-based Enterprise	Total	
		O/M	Replacement					
-5	1,442,294	0	0	1,442,294	0	0	0	-1,442,294
-4	2,163,679	0	0	2,163,679	0	0	0	-2,163,679
-3	5,743,622	0	0	5,743,622	0	0	0	-5,743,622
-2	10,471,339	0	0	10,471,339	0	0	0	-10,471,339
-1	23,630,405	0	0	23,630,405	0	0	0	-23,630,405
0	36,730,346	0	0	36,730,346	0	0	0	-36,730,346
1	51,723,780	0	0	51,723,780	0	0	0	-51,723,780
2	198,835,429	0	4,324,760	203,160,189	0	0	0	-203,160,189
3	644,037,290	0	8,944,740	652,982,030	0	0	0	-652,982,030
4	583,299,692	0	11,100,330	594,400,022	0	0	0	-594,400,022
5	625,201,253	0	28,438,370	653,639,623	0	0	0	-653,639,623
6	344,826,152	0	74,844,246	419,670,398	48,705,423	12,280,788	60,986,211	-358,684,187
7	38,330,640	0	87,782,027	126,112,667	75,461,066	14,624,759	90,085,825	-36,026,842
8	32,048,331	0	88,506,367	120,554,698	179,863,290	26,201,549	206,064,839	85,510,141
9	6,153,824	192,000	88,965,553	95,311,377	252,623,765	32,649,026	285,272,792	189,961,415
10	10,452,291	0	89,255,840	99,708,131	340,036,128	35,320,623	375,356,751	275,648,620
11	27,163,498	0	90,288,516	117,452,014	392,766,560	36,182,935	428,949,494	311,497,480
12	23,337,409	32,410,170	91,415,359	147,162,938	426,902,581	36,353,446	463,256,027	316,093,089
13	14,827,521	0	92,590,331	107,417,852	461,254,799	73,653,589	534,908,388	427,490,536
14	14,827,521	1,545,030	92,788,007	109,160,558	490,035,738	73,824,100	563,859,838	454,699,280
15	0	0	97,633,545	97,633,545	519,149,685	76,115,428	595,265,113	497,631,568
16	10,195,724	0	97,640,545	107,836,269	519,149,685	76,115,428	595,265,113	487,428,844
17	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
18	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
19	0	110,003,640	97,647,450	207,651,090	519,149,685	76,115,428	595,265,113	387,614,023
20	0	32,410,170	97,647,450	130,057,620	519,149,685	76,115,428	595,265,113	465,207,493
21	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
22	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
23	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
24	0	1,540,530	97,647,450	99,187,980	519,149,685	76,115,428	595,265,113	496,077,133
25	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
26	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
27	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
28	0	32,410,170	97,647,450	130,057,620	519,149,685	76,115,428	595,265,113	465,207,493
29	0	342,271,130	97,647,450	439,918,580	519,149,685	76,115,428	595,265,113	155,346,533
30	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
31	0	18,313,600	97,647,450	115,961,050	510,600,601	76,115,428	586,716,029	470,754,979
32	0	16,417,060	97,647,450	114,064,510	511,841,593	76,115,428	587,957,021	473,892,511
33	0	95,225,980	97,647,450	192,873,430	511,829,083	76,115,428	587,944,511	395,071,081
34	0	190,799,210	97,647,450	288,446,660	511,805,314	76,115,428	587,920,742	299,474,082
35	0	24,381,610	97,647,450	122,029,060	513,430,353	76,115,428	589,545,791	467,516,731
36	0	43,641,030	97,647,450	141,288,480	515,060,917	76,115,428	591,176,345	449,887,865
37	0	12,259,720	97,647,450	109,907,170	516,622,165	76,115,428	592,737,593	482,830,423
38	0	9,324,830	97,647,450	106,972,280	518,050,056	76,115,428	594,165,484	487,193,204
39	0	9,461,560	97,647,450	107,109,010	519,149,685	76,115,428	595,265,113	488,156,103
40	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
41	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
42	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
43	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
44	0	34,165,950	97,647,450	131,813,400	519,149,685	76,115,428	595,265,113	463,451,713
45	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
46	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
47	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
48	0	0	97,647,450	97,647,450	519,149,685	76,115,428	595,265,113	497,617,663
49	0	109,971,640	97,647,450	207,619,090	519,149,685	76,115,428	595,265,113	387,646,023
50	0	-95,308,765	97,647,450	2,338,685	519,149,685	76,115,428	595,265,113	592,926,428

EIRR = 10.20%  
NPV = 30,115,153

Table H-24 Sensitivity Analysis

(3) Case 3: Combination of the Case (1) and (2)

Unit: LE

Year in Order	Costs				Benefits			Net Incremental Benefits
	Capital	Recurrent		Total	Agricultural Production	Agro-based Enterprise	Total	
		O/M	Replacement					
-5	1,586,523	0	0	1,586,523	0	0	0	-1,586,523
-4	2,380,047	0	0	2,380,047	0	0	0	-2,380,047
-3	6,317,984	0	0	6,317,984	0	0	0	-6,317,984
-2	11,518,473	0	0	11,518,473	0	0	0	-11,518,473
-1	25,993,446	0	0	25,993,446	0	0	0	-25,993,446
0	40,403,381	0	0	40,403,381	0	0	0	-40,403,381
1	56,896,158	0	0	56,896,158	0	0	0	-56,896,158
2	218,718,972	0	4,757,236	223,476,208	0	0	0	-223,476,208
3	708,441,019	0	9,839,214	718,280,233	0	0	0	-718,280,233
4	641,629,661	0	12,210,363	653,840,024	0	0	0	-653,840,024
5	687,721,378	0	31,282,207	719,003,585	0	0	0	-719,003,585
6	379,308,767	0	82,328,671	461,637,438	48,705,423	12,280,788	60,986,211	-400,651,227
7	42,163,704	0	96,560,230	138,723,934	75,461,066	14,624,759	90,085,825	-48,638,109
8	35,253,164	0	97,357,004	132,610,168	179,863,290	26,201,549	206,064,839	73,454,671
9	6,769,206	211,200	97,862,108	104,842,515	252,623,765	32,649,026	285,272,792	180,430,277
10	11,497,520	0	98,181,424	109,678,944	340,036,128	35,320,623	375,356,751	265,677,807
11	29,879,848	0	99,317,368	129,197,215	392,766,560	36,182,935	428,949,494	299,752,279
12	25,671,150	35,651,187	100,556,895	161,879,232	426,902,581	36,353,446	463,256,027	301,376,795
13	16,310,273	0	101,849,364	118,159,637	461,254,799	73,653,589	534,908,388	416,748,751
14	16,310,273	1,699,533	102,066,808	120,076,614	490,035,738	73,824,100	563,859,838	443,783,224
15	0	0	107,396,900	107,396,900	519,149,685	76,115,428	595,265,113	487,868,214
16	11,215,296	0	107,404,600	118,619,896	519,149,685	76,115,428	595,265,113	476,645,217
17	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
18	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
19	0	121,004,004	107,412,195	228,416,199	519,149,685	76,115,428	595,265,113	366,848,914
20	0	35,651,187	107,412,195	143,063,382	519,149,685	76,115,428	595,265,113	452,201,731
21	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
22	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
23	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
24	0	1,694,583	107,412,195	109,106,778	519,149,685	76,115,428	595,265,113	486,158,335
25	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
26	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
27	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
28	0	35,651,187	107,412,195	143,063,382	519,149,685	76,115,428	595,265,113	452,201,731
29	0	376,498,243	107,412,195	483,910,438	519,149,685	76,115,428	595,265,113	111,354,675
30	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
31	0	20,144,960	107,412,195	127,557,155	510,600,601	76,115,428	586,716,029	459,158,874
32	0	18,058,766	107,412,195	125,470,961	511,841,593	76,115,428	587,957,021	462,486,060
33	0	104,748,578	107,412,195	212,160,773	511,829,083	76,115,428	587,944,511	375,783,738
34	0	209,879,131	107,412,195	317,291,326	511,805,314	76,115,428	587,920,742	270,629,416
35	0	26,819,771	107,412,195	134,231,966	513,430,363	76,115,428	589,545,791	455,313,825
36	0	48,005,133	107,412,195	155,417,328	515,060,917	76,115,428	591,176,345	435,759,017
37	0	13,485,692	107,412,195	120,897,887	516,622,165	76,115,428	592,737,593	471,839,706
38	0	10,257,313	107,412,195	117,669,508	518,050,056	76,115,428	594,165,484	476,495,976
39	0	10,407,716	107,412,195	117,819,911	519,149,685	76,115,428	595,265,113	477,445,202
40	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
41	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
42	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
43	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
44	0	37,582,545	107,412,195	144,994,740	519,149,685	76,115,428	595,265,113	450,270,373
45	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
46	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
47	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
48	0	0	107,412,195	107,412,195	519,149,685	76,115,428	595,265,113	487,852,918
49	0	120,968,804	107,412,195	228,380,999	519,149,685	76,115,428	595,265,113	366,884,114
50	0	-104,839,642	107,412,195	2,572,554	519,149,685	76,115,428	595,265,113	592,692,560

EIRR = 9.29%  
NPV = -111,313,123

Table H-24 Sensitivity Analysis

(4) Case 4: Construction Period of Main Civil Works Prolonged to 5 Years

Unit: LE

Year in Order	Costs				Benefits			Net Incremental Benefits
	Capital	Recurrent		Total	Agricultural Production	Agro-based Enterprise	Total	
		O/M	Replacement					
-5	1,442,294	0	0	1,442,294	0	0	0	-1,442,294
-4	2,163,679	0	0	2,163,679	0	0	0	-2,163,679
-3	5,743,622	0	0	5,743,622	0	0	0	-5,743,622
-2	10,471,339	0	0	10,471,339	0	0	0	-10,471,339
-1	23,630,405	0	0	23,630,405	0	0	0	-23,630,405
0	36,730,346	0	0	36,730,346	0	0	0	-36,730,346
1	51,723,780	0	0	51,723,780	0	0	0	-51,723,780
2	198,846,429	4,324,760	0	203,171,189	0	0	0	-203,171,189
3	180,324,246	8,944,740	0	189,268,986	0	0	0	-189,268,986
4	318,859,282	11,100,330	0	329,959,612	0	0	0	-329,959,612
5	660,002,261	28,438,370	0	688,440,631	0	0	0	-688,440,631
6	448,010,431	47,686,100	0	495,696,531	0	0	0	-495,696,531
7	630,771,492	64,516,320	0	695,287,812	0	0	0	-695,287,812
8	30,443,040	74,844,246	0	105,287,286	54,117,136	13,645,320	67,762,456	-37,524,830
9	3,921,090	87,782,027	0	91,703,117	83,845,629	16,249,732	100,095,361	8,392,244
10	10,186,830	88,506,367	0	98,693,197	199,848,100	29,112,832	228,960,932	130,267,735
11	23,925,870	88,965,553	192,000	113,083,423	280,693,073	36,276,696	316,969,769	203,886,346
12	23,367,330	89,255,840	0	112,623,170	377,817,920	39,245,137	417,063,057	304,439,887
13	20,324,070	90,288,516	0	110,612,586	436,407,288	40,203,261	476,610,549	365,997,963
14	14,358,480	91,415,359	32,410,170	138,184,009	474,336,201	40,392,718	514,728,918	376,544,909
15	0	92,590,331	0	92,590,331	512,505,333	81,837,321	594,342,654	501,752,323
16	0	92,788,007	1,545,030	94,333,037	544,484,153	82,026,778	626,510,931	532,177,894
17	0	97,633,545	0	97,633,545	576,832,983	84,572,698	661,405,681	563,772,136
18	10,195,724	97,640,545	0	107,836,269	576,832,983	84,572,698	661,405,681	553,569,412
19	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
20	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
21	0	97,647,450	110,003,640	207,651,090	576,832,983	84,572,698	661,405,681	453,754,591
22	0	97,647,450	32,410,170	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
23	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
24	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
25	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
26	0	97,647,450	1,540,530	99,187,980	576,832,983	84,572,698	661,405,681	562,217,701
27	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
28	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
29	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
30	0	97,647,450	32,410,170	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
31	0	97,647,450	342,271,130	439,918,580	576,832,983	84,572,698	661,405,681	221,487,101
32	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
33	0	97,647,450	18,313,600	115,961,050	567,334,001	84,572,698	651,906,699	535,945,649
34	0	97,647,450	16,417,060	114,064,510	568,712,881	84,572,698	653,285,579	539,221,069
35	0	97,647,450	95,225,980	192,873,430	568,698,981	84,572,698	653,271,679	460,398,249
36	0	97,647,450	190,799,210	288,446,660	568,672,571	84,572,698	653,245,269	364,798,609
37	0	97,647,450	24,381,610	122,029,060	570,478,181	84,572,698	655,050,879	533,021,819
38	0	97,647,450	43,641,030	141,288,480	572,289,907	84,572,698	656,862,605	515,574,125
39	0	97,647,450	12,259,720	109,907,170	574,024,627	84,572,698	658,597,325	548,690,155
40	0	97,647,450	9,324,830	106,972,280	575,611,173	84,572,698	660,183,871	553,211,591
41	0	97,647,450	9,461,560	107,109,010	576,832,983	84,572,698	661,405,681	554,296,671
42	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
43	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
44	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
45	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
46	0	97,647,450	34,165,950	131,813,400	576,832,983	84,572,698	661,405,681	529,592,281
47	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
48	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
49	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
50	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231

EIRR = 10.13%  
NPV = 18,884,554

Table H-24 Sensitivity Analysis

(5) Case 5: Inclusion of Cost for Social Infrastructures

Unit: LE

Year in Order	Costs				Benefits			Net Incremental Benefits
	Capital	Recurrent		Total	Agricultural Production	Agro-based Enterprise	Total	
		O/M	Replacement					
-5	1,442,294	0	0	1,442,294	0	0	0	-1,442,294
-4	2,163,679	0	0	2,163,679	0	0	0	-2,163,679
-3	5,743,622	0	0	5,743,622	0	0	0	-5,743,622
-2	10,471,339	0	0	10,471,339	0	0	0	-10,471,339
-1	23,630,405	0	0	23,630,405	0	0	0	-23,630,405
0	36,730,346	0	0	36,730,346	0	0	0	-36,730,346
1	51,723,780	0	0	51,723,780	0	0	0	-51,723,780
2	198,835,429	4,324,760	0	203,160,189	0	0	0	-203,160,189
3	872,817,290	8,944,740	0	881,762,030	0	0	0	-881,762,030
4	891,205,692	11,100,330	0	902,306,022	0	0	0	-902,306,022
5	928,373,253	28,438,370	0	956,811,623	0	0	0	-956,811,623
6	421,030,152	74,844,246	0	495,874,398	54,117,136	13,645,320	67,762,456	-428,111,942
7	38,330,640	87,782,027	0	126,112,667	83,845,629	16,249,732	100,095,361	-26,017,306
8	32,048,331	88,506,367	0	120,554,698	199,848,100	29,112,832	228,960,932	108,406,234
9	6,153,824	88,965,553	192,000	95,311,377	280,693,073	36,276,696	316,969,769	221,658,392
10	10,452,291	89,255,840	0	99,708,131	377,817,920	39,245,137	417,063,057	317,354,926
11	27,163,498	90,288,516	0	117,452,014	436,407,288	40,203,261	476,610,549	359,158,535
12	23,337,409	91,415,359	32,410,170	147,162,938	474,336,201	40,392,718	514,728,918	367,565,980
13	14,827,521	92,590,331	0	107,417,852	512,505,333	81,837,321	594,342,654	486,924,802
14	14,827,521	92,788,007	1,545,030	109,160,558	544,484,153	82,026,778	626,510,931	517,350,373
15	0	97,633,545	0	97,633,545	576,832,983	84,572,698	661,405,681	563,772,136
16	10,195,724	97,640,545	0	107,836,269	576,832,983	84,572,698	661,405,681	553,569,412
17	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
18	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
19	0	97,647,450	110,003,640	207,651,090	576,832,983	84,572,698	661,405,681	453,754,591
20	0	97,647,450	32,410,170	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
21	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
22	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
23	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
24	0	97,647,450	1,540,530	99,187,980	576,832,983	84,572,698	661,405,681	562,217,701
25	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
26	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
27	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
28	0	97,647,450	32,410,170	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
29	0	97,647,450	342,271,130	439,918,580	576,832,983	84,572,698	661,405,681	221,487,101
30	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
31	0	97,647,450	18,313,600	115,961,050	567,334,001	84,572,698	651,906,699	535,945,649
32	0	97,647,450	16,417,060	114,064,510	568,712,881	84,572,698	653,285,579	539,221,069
33	0	97,647,450	95,225,980	192,873,430	568,698,981	84,572,698	653,271,679	460,398,249
34	0	97,647,450	190,799,210	288,446,660	568,672,571	84,572,698	655,050,879	533,021,819
35	0	97,647,450	24,381,610	122,029,060	570,478,181	84,572,698	656,050,879	533,021,819
36	0	97,647,450	43,641,030	141,288,480	572,289,907	84,572,698	656,862,605	515,574,125
37	0	97,647,450	12,259,720	109,907,170	574,024,627	84,572,698	658,597,325	548,690,155
38	0	97,647,450	9,324,830	106,972,280	575,611,173	84,572,698	660,183,871	553,211,591
39	0	97,647,450	9,461,560	107,109,010	576,832,983	84,572,698	661,405,681	554,296,671
40	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
41	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
42	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
43	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
44	0	97,647,450	34,165,950	131,813,400	576,832,983	84,572,698	661,405,681	529,592,281
45	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
46	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
47	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
48	0	97,647,450	0	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
49	0	97,647,450	109,971,640	207,619,090	576,832,983	84,572,698	661,405,681	453,786,591
50	0	97,647,450	-95,308,765	2,338,685	576,832,983	84,572,698	661,405,681	659,066,996

EIRR = 9.16%  
NPV = -155,673,214

Table H-24 Sensitivity Analysis

(6) Case 6: Summing common civil works for 400,000 feddans in one year

Unit: LE

Year in Order	Costs				Benefits			Net Incremental Benefits
	Capital	Recurrent		Total	Agricultural Production	Agro-based Enterprise	Total	
		Replacement	O/M					
0	80,181,685	0	0	80,181,685	0	0	0	-80,181,685
1	51,723,780	0	0	51,723,780	0	0	0	-51,723,780
2	198,835,429	0	4,324,760	203,160,189	0	0	0	-203,160,189
3	644,037,290	0	8,944,740	652,982,030	0	0	0	-652,982,030
4	583,299,692	0	11,100,330	594,400,022	0	0	0	-594,400,022
5	625,201,253	0	28,438,370	653,639,623	0	0	0	-653,639,623
6	344,826,152	0	74,844,246	419,670,398	54,117,136	13,645,320	67,762,456	-351,907,942
7	38,330,640	0	87,782,027	126,112,667	83,845,629	16,249,732	100,095,361	-26,017,306
8	32,048,331	0	88,506,367	120,554,698	199,848,100	29,112,832	228,960,932	108,406,234
9	6,153,824	192,000	88,965,553	95,311,377	280,693,073	36,276,696	316,969,769	221,658,392
10	10,452,291	0	89,255,840	99,708,131	377,817,920	39,245,137	417,063,057	317,354,926
11	27,163,498	0	90,288,516	117,452,014	436,407,288	40,203,261	476,610,549	359,158,535
12	23,337,409	32,410,170	91,415,359	147,162,938	474,336,201	40,392,718	514,728,918	367,565,980
13	14,827,521	0	92,590,331	107,417,852	512,505,333	81,837,321	594,342,654	486,924,802
14	14,827,521	1,545,030	92,788,007	109,160,558	544,484,153	82,026,778	626,510,931	517,350,373
15	0	0	97,633,545	97,633,545	576,832,983	84,572,698	661,405,681	563,772,136
16	10,195,724	0	97,640,545	107,836,269	576,832,983	84,572,698	661,405,681	553,569,412
17	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
18	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
19	0	110,003,640	97,647,450	207,651,090	576,832,983	84,572,698	661,405,681	453,754,591
20	0	32,410,170	97,647,450	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
21	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
22	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
23	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
24	0	1,540,530	97,647,450	99,187,980	576,832,983	84,572,698	661,405,681	562,217,701
25	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
26	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
27	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
28	0	32,410,170	97,647,450	130,057,620	576,832,983	84,572,698	661,405,681	531,348,061
29	0	342,271,130	97,647,450	439,918,580	576,832,983	84,572,698	661,405,681	221,487,101
30	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
31	0	18,313,600	97,647,450	115,961,050	567,334,001	84,572,698	651,906,699	535,945,649
32	0	16,417,060	97,647,450	114,064,510	568,712,881	84,572,698	653,285,579	539,221,069
33	0	95,225,980	97,647,450	192,873,430	568,698,981	84,572,698	653,271,679	460,398,249
34	0	190,799,210	97,647,450	288,446,660	568,672,571	84,572,698	653,245,269	364,798,609
35	0	24,381,610	97,647,450	122,029,060	570,478,181	84,572,698	655,050,879	533,021,819
36	0	43,641,030	97,647,450	141,288,480	572,289,907	84,572,698	656,862,605	515,574,125
37	0	12,259,720	97,647,450	109,907,170	574,024,627	84,572,698	658,597,325	548,690,155
38	0	9,324,830	97,647,450	106,972,280	575,611,173	84,572,698	660,183,871	553,211,591
39	0	9,461,560	97,647,450	107,109,010	576,832,983	84,572,698	661,405,681	554,296,671
40	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
41	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
42	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
43	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
44	0	34,165,950	97,647,450	131,813,400	576,832,983	84,572,698	661,405,681	529,592,281
45	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
46	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
47	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
48	0	0	97,647,450	97,647,450	576,832,983	84,572,698	661,405,681	563,758,231
49	0	109,971,640	97,647,450	207,619,090	576,832,983	84,572,698	661,405,681	453,786,591
50	0	-95,308,765	97,647,450	2,338,685	576,832,983	84,572,698	661,405,681	659,066,996

EIRR = 11.29%  
NPV = 314,558,305

Table H-25 Financial Analysis of Model Farm

(1) Model Farm No. 1

Category of Seller: Large Scale Investor  
 Land Holding Size: 748 Feddons; Cultivable Area: 720 Feddons/Year  
 Proposed Farming System: Puts Production (Almond, Grape, Olive & Orange)

Year in Order After Commencement of Growing	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
I. Initial Investment																				
- Farm Investment 1/	329,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2/	179,520	179,520	179,520	179,520	2,384,640	952,000	914,995	877,901	840,804	803,712	766,618	729,523	692,429	655,334	618,240	581,146	544,052	506,958	469,864	432,770
- House 3/	48,612	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Orchard Irrigation System 4/	2,582,640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,139,772	179,520	179,520	179,520	2,384,640	952,000	914,995	877,901	840,804	803,712	766,618	729,523	692,429	655,334	618,240	581,146	544,052	506,958	469,864	432,770
II. Returns from Farm Operation																				
- Gross Value of Agricultural Production 5/	0	0	0	0	992,512	1,965,024	2,997,576	3,990,048	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560	4,912,560
- Production Cost 6/	1,450,440	777,900	777,900	777,900	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940	830,940
- O/M of Orchard System 7/	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300
Net Farm Return	-1,456,740	-784,200	-784,200	-784,200	-162,992	1,127,784	2,151,436	3,027,448	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260
BALANCE BEFORE FINANCING	-4,596,512	-683,720	-683,720	-683,720	-2,221,656	175,894	1,258,501	2,179,547	3,181,474	3,218,548	2,115,802	3,292,737	3,329,851	3,366,965	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260	4,022,260
ACCUMULATED BALANCE	-4,596,512	-5,560,332	-6,523,952	-7,487,672	-8,451,392	-9,415,112	-10,378,832	-11,342,552	-12,306,272	-13,270,000	-14,233,720	-15,197,440	-16,161,160	-17,124,880	-18,088,600	-19,052,320	-20,016,040	-20,979,760	-21,943,480	-22,907,200
III. Financing																				
- Loan from PBDAC for Crop Farming 8/	1,892,070	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Loan from PBDAC for Orchard Investment 9/	2,911,540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	4,803,610	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IV. Repayment of Loan																				
- Repayment to PBDAC for Crop Farming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Repayment to PBDAC for Orchard Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V. Net Cash Flow	207,198	-683,720	-683,720	-683,720	2,975,056	3,699,436	4,723,879	5,498,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260

Notes: 1/ Farm Shed, Equipment, etc.  
 2/ Estimated at LE 12,000 per hectare; terms of payment: 50% at the time of contract (5th year) and the balance equal installment over 9 years with interest rate at 6% during initial 4 years; included land is provided to sellers on rental basis and annual cost for 6.2% of the total land cost which is deductible from land cost.  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 3,587 per hectare.  
 5/ Market price of outputs.  
 6/ Cost of actually purchased inputs expressed in market prices.  
 7/ Estimated at LE 87.5/ha; for replacement of equipment incurred at 11th year.  
 8/ 50% of farm inputs to cover initial 4 years; repayment in equal installment over 5 years with gross period of 7 years and interest rate at 13%.  
 9/ Repayment over 10 years with gross period of 7 years and interest rate at 15%.



Table H-25 Financial Analysis of Model Farm

Year or Quarter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<p>(2) Model Farm No. 2</p> <p>Category of Seller: Large Scale Investor</p> <p>Land Holding Size: 748 Acres; Cultivable Area: 1,158 Feddans/Year</p> <p>Proposed Farming System: Cattle Rearing with Wheat &amp; Fodder Crops Production (Maize, Barley, Sorghum &amp; Beans)</p>																				
<p>Year or Quarter After Commencement of Cropping</p>																				
I. Initial Investment	872,700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Investment 1/	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520
- Farm Loan 2/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- House 3/	46,812	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- On-farm Impulse System 4/	2,002,650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- On-farm Impulse System 4/	3,100,482	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520
Total	4,022,664	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520
<p>II. Returns from Farm Operation</p>																				
- Gross Value of Agricultural Production 5/	441,504	589,736	2,268,338	2,587,284	2,907,178	3,140,284	3,163,094	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854	3,166,854
- Production Cost 6/	398,563	1,920,790	1,133,000	1,212,315	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300	1,273,300
- Cost of On-farm system 7/	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744	111,744
- Net Farm Returns	-46,812	-1,442,798	1,023,594	1,263,225	1,522,134	1,755,240	1,778,050	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810	1,801,810
NET BALANCE BEFORE FINANCING	-3,173,305	-1,822,316	644,074	1,053,705	482,506	603,150	683,055	923,900	961,008	968,096	1,035,192	1,072,287	1,109,281	1,146,275	1,183,269	1,220,263	1,257,257	1,294,251	1,331,245	1,368,239
ACCUMULATED NET BALANCE	-3,173,305	-4,795,621	-3,951,547	-2,887,842	-2,094,143	-1,140,234	-179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228	179,228
<p>III. Financing</p>																				
- Loan from PBOAC for Crop Farming 8/	254,184	1,018,287	622,372	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Loan from PBOAC for On-farm Investment 9/	2,878,350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Subtotal	3,132,534	1,018,287	622,372	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<p>IV. Repayment of Loan</p>																				
- Repayment to PBOAC for Crop Farming	262,122	605,110	680,832	0	234,816	234,816	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Repayment to PBOAC for On-farm Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Subtotal	262,122	605,110	680,832	0	234,816	234,816	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V. Net Cash Flow	-322,914	-1,211,159	775,814	1,053,705	-1,097,122	-568,534	463,035	923,909	177,875	281,958	348,039	400,122	514,903	595,022	680,069	769,595	859,122	948,649	1,038,176	1,127,703
Result																				
- IRR: 14%																				
- NPV at discount rate of 13.5%: LE 285 808 (Total), LE 247 (Per Feddan)																				

Notes: 1/ Farm Sheds, Equipment, etc.  
 2/ Estimated at LE 12,000 per feddan; terms of payment 30% at the time of contract (5th year) and the balance equal installment over 9 years with interest rate at 8% during initial 4 years; remainder land is provided to farmers on rental basis and annual cost for it is 2% of the total land cost which is deductible from land cost  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 3,485 per feddan  
 5/ Market price of wheat, maize, barley & bean; value of fodder crops is not taken into account because they are used to feed animals raised by the same farmer  
 6/ Cost of actually purchased inputs expressed in market price (cost of feed such as sorghum and beans) is included from investment budget  
 7/ Estimated at LE 57/fed. for annual routine works and at LE 560/fed. for replacement of equipment incurred at 14th year  
 8/ 50% of farm inputs, repayments after harvest for crops with interest rate at 11%; for livestock in equal installment over 3 years with grace period of 3 years and interest rate at 13%  
 9/ Repayment over 10 years with grace period of 7 years and interest rate at 15%

# Table H-25 Financial Analysis of Model Farm

(3) Model Farm No. 3

Category of Settler: Large Scale Investor  
 Land Holding Size: 748 Feddans; Cultivable Area: 1,440 Feddans/Year  
 Proposed Farming System: Dairy Production with Wheat, Maize, Barley and Fodder Crops (Serghum, Barstem A Fodder Beet)

Year in Order After Commencement of Cropping	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>I. Initial Investment</b>																				
- Farm Investment V	1,845,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2'	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520
- House 3'	48,812	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- On-farm Impaction System 4'	5,055,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>7,128,252</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>
<b>II. Returns from Farm Operation</b>																				
- Gross Value of Agricultural Production 5'	551,880	737,172	795,740	7,059,542	8,020,238	9,006,970	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740	9,921,740
- Production Cost 6'	495,750	5,163,862	1,787,250	1,886,393	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660	1,962,660
- Cost of On-farm System 7'	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200
<b>Net Farm Returns</b>	<b>-95,050</b>	<b>-4,577,890</b>	<b>-1,142,707</b>	<b>5,061,949</b>	<b>5,879,378</b>	<b>6,693,110</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>	<b>7,607,880</b>
<b>NET BALANCE BEFORE FINANCING</b>	<b>-7,223,902</b>	<b>-4,757,410</b>	<b>-1,322,327</b>	<b>4,830,429</b>	<b>5,941,020</b>	<b>6,832,845</b>	<b>8,920,979</b>	<b>6,967,075</b>	<b>3,574,168</b>	<b>7,041,262</b>	<b>7,078,357</b>	<b>7,115,451</b>	<b>7,152,545</b>	<b>7,189,639</b>	<b>7,226,733</b>	<b>7,263,827</b>	<b>7,300,921</b>	<b>7,338,015</b>	<b>7,375,109</b>	<b>7,412,203</b>
<b>ACCUMULATED NET BALANCE</b>	<b>-7,223,902</b>	<b>-11,980,712</b>	<b>-13,302,939</b>	<b>-8,470,510</b>	<b>-4,628,772</b>	<b>1,115,248</b>	<b>8,008,133</b>	<b>14,936,112</b>	<b>21,905,188</b>	<b>25,479,356</b>	<b>32,520,618</b>	<b>39,598,975</b>	<b>46,714,426</b>	<b>51,503,370</b>	<b>59,311,250</b>	<b>67,119,130</b>	<b>74,927,010</b>	<b>82,734,890</b>	<b>90,542,770</b>	<b>98,350,650</b>
<b>III. Financing</b>																				
- Loan from PBOAC for Dairy Farming 8'	0	3,430,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Loan from PBOAC for On-farm Investment 9'	6,900,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Subtotal</b>	<b>6,900,120</b>	<b>3,430,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IV. Replacement of Loan</b>																				
- Replacement to PBOAC for Dairy Farming	0	0	445,900	445,900	445,900	445,900	1,568,900	1,440,310	1,291,490	0	445,900	445,900	445,900	1,588,900	1,440,310	1,291,490	0	0	0	0
- Replacement to PBOAC for On-farm Investment	0	0	0	0	0	0	0	0	1,725,000	1,821,528	1,515,028	1,414,525	1,311,023	1,207,521	1,104,019	1,000,517	897,016	793,514	0	0
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>445,900</b>	<b>445,900</b>	<b>445,900</b>	<b>445,900</b>	<b>1,568,900</b>	<b>1,440,310</b>	<b>1,291,490</b>	<b>1,821,528</b>	<b>1,960,928</b>	<b>1,866,425</b>	<b>1,758,923</b>	<b>1,666,425</b>	<b>1,564,329</b>	<b>1,461,007</b>	<b>1,357,514</b>	<b>1,254,514</b>	<b>1,151,514</b>	<b>112,000</b>
<b>V. Net Cash Flow</b>	<b>-323,782</b>	<b>-1,327,410</b>	<b>-1,766,127</b>	<b>4,038,529</b>	<b>3,148,828</b>	<b>4,557,120</b>	<b>5,457,575</b>	<b>5,698,369</b>	<b>5,242,046</b>	<b>5,362,640</b>	<b>5,077,336</b>	<b>5,217,932</b>	<b>5,259,526</b>	<b>5,298,421</b>	<b>5,337,316</b>	<b>5,376,211</b>	<b>5,415,106</b>	<b>5,454,001</b>	<b>5,492,896</b>	<b>5,531,791</b>
<b>Result</b>	<b>-323,782</b>	<b>-1,327,410</b>	<b>-1,766,127</b>	<b>4,038,529</b>	<b>3,148,828</b>	<b>4,557,120</b>	<b>5,457,575</b>	<b>5,698,369</b>	<b>5,242,046</b>	<b>5,362,640</b>	<b>5,077,336</b>	<b>5,217,932</b>	<b>5,259,526</b>	<b>5,298,421</b>	<b>5,337,316</b>	<b>5,376,211</b>	<b>5,415,106</b>	<b>5,454,001</b>	<b>5,492,896</b>	<b>5,531,791</b>

Note: 1/ Farm Shed, Equipment, etc.  
 2/ Estimated at LE 12,000 per feddan; terms of payment: 30% at the time of purchase (5th year) and the balance equal installment over 9 years with interest rate at 6% during initial 4 years (recaptured land is provided in settlers on rental basis and annual cost for it is 2% of the total land cost which is deductible from land cost)  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 7,021 per feddan  
 5/ Market price of wheat, maize, barley & beef value of fodder crops is not taken into account because they are used to feed animals raised by the same farmer  
 6/ Cost of actually increased inputs expressed in market price (cost of feed such as sorghum, barstem and fodder beet is included from livestock budget)  
 7/ Estimated at LE 105/ha; for annual maintenance and at LE 3,302/ha; for replacement of equipment incurred at 4th year  
 8/ For purchase of heifer; replacement in equal installment over 3 years with grace period of 3 years and interest rate at 13%  
 9/ Replacement over 10 years with grace period of 7 years and interest rate at 15%

Table H-25 Financial Analysis of Model Farm

Year in Order After Commencement of Cropping	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>I. Initial Investment</b>																			
- Farm Investment 1/	230,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2/	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520	179,520
- House 3/	46,812	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Orchard Irrigation System 4/	4,133,835	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>4,581,967</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>	<b>179,520</b>
<b>II. Revenue from Farm Operation</b>																			
- Gross Value of Agricultural Production 5/	1,650,487	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689	2,791,689
- Production Cost 6/	1,132,520	1,243,010	1,312,060	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120	1,381,120
- O/M of Orchard system 7/	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200
<b>Net Farm Return</b>	<b>374,787</b>	<b>1,071,514</b>	<b>1,397,459</b>	<b>1,701,959</b>	<b>2,066,600</b>	<b>2,158,969</b>	<b>1,981,540</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>	<b>2,188,900</b>
<b>BALANCE BEFORE FINANCING</b>																			
	-4,217,200	891,964	1,217,939	1,522,470	-218,040	1,308,670	1,068,545	1,310,999	1,348,086	1,365,188	1,422,282	1,459,377	1,494,471	371,066	1,881,540	2,235,100	2,188,900	2,188,900	2,188,900
<b>ACCUMULATED NET BALANCE</b>	<b>-4,217,200</b>	<b>-3,325,236</b>	<b>-2,107,287</b>	<b>-564,797</b>	<b>-900,837</b>	<b>308,033</b>	<b>1,372,578</b>	<b>2,683,577</b>	<b>4,031,673</b>	<b>5,418,861</b>	<b>6,839,143</b>	<b>8,298,520</b>	<b>9,784,991</b>	<b>10,116,077</b>	<b>12,097,617</b>	<b>14,332,717</b>	<b>16,521,617</b>	<b>18,710,517</b>	<b>20,899,417</b>
<b>III. Financing</b>																			
- Loan from PBDCAC for Crop Farming 8/	566,250	566,975	571,205	576,000	580,560	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Repayment to PBDCAC for Orchard Investment 9/	4,363,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Subtotal</b>	<b>-4,800,095</b>	<b>566,975</b>	<b>571,205</b>	<b>576,000</b>	<b>580,560</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IV. Reinvestment of Cash</b>																			
- Reinvestment to PBDCAC for Crop Farming 8/	626,546	651,542	689,671	728,193	766,522	0	0	0	624,343	575,169	525,995	476,602	427,600	0	0	0	0	0	0
- Reinvestment to PBDCAC for Orchard Investment 9/	626,546	651,542	689,671	728,193	766,522	0	0	0	1,156,210	1,099,657	1,020,104	950,552	860,969	611,447	741,884	672,342	602,789	533,236	0
<b>Subtotal</b>	<b>626,546</b>	<b>651,542</b>	<b>689,671</b>	<b>728,193</b>	<b>766,522</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,780,553</b>	<b>1,684,846</b>	<b>1,546,099</b>	<b>1,427,154</b>	<b>1,308,607</b>	<b>611,447</b>	<b>741,884</b>	<b>672,342</b>	<b>602,789</b>	<b>533,236</b>	<b>0</b>
<b>V. Net Cash Flow</b>	<b>24,348</b>	<b>877,427</b>	<b>1,149,673</b>	<b>1,450,307</b>	<b>-192,002</b>	<b>1,308,670</b>	<b>1,068,545</b>	<b>1,310,999</b>	<b>-35,487</b>	<b>-279,658</b>	<b>-229,617</b>	<b>32,073</b>	<b>187,984</b>	<b>-80,361</b>	<b>1,239,648</b>	<b>1,597,758</b>	<b>1,586,111</b>	<b>1,655,684</b>	<b>2,188,900</b>
<b>Result</b>	<b>198,353</b>	<b>1,459,377</b>	<b>1,849,144</b>	<b>2,326,471</b>	<b>2,174,469</b>	<b>3,486,642</b>	<b>4,755,194</b>	<b>6,066,676</b>	<b>7,401,189</b>	<b>8,761,531</b>	<b>10,141,914</b>	<b>11,541,337</b>	<b>12,970,311</b>	<b>14,428,788</b>	<b>15,918,436</b>	<b>17,428,184</b>	<b>18,957,084</b>	<b>20,495,984</b>	<b>22,034,884</b>

Notes: 1/ Farm Share, Equipment, etc.  
 2/ Estimated at LE 12,000 per hectare; terms of payment: 30% at the time of contract (5th year) and the balance equal installment over 9 years with interest rate at 8% during initial 4 years; returned land is provided to settlers on rental basis and annual cost for it is 2% of the total land cost which is deductible from land cost.  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 7,965 per hectare.  
 5/ Market price of outputs.  
 6/ Cost of annually purchased inputs increased in market prices.  
 7/ Estimated at LE 105/ha for annual inputs works and at LE 250/ha for replacement of equipment incurred in 7th & 15th year and LE 1,800/ha in 14th year.  
 8/ 50% of farm inputs, repayment in the same year after harvest.  
 9/ Repayment over 10 years with grace period of 7 years and interest rate of 15%.

Table H-25: Financial Analysis of Model Farm

(5) Model Farm No. 5

Category of Seller: Small Scale Investor  
 Land Holding Size: 103 Faddens; Cultivable Area: 200 Faddens/year  
 Proposed Farming System: Perennial Crops (Soybeans, Sorghum, Tomato for Processing, etc.) & Fruits (Grapes, Citrus and Oranges)

Year in Cycle After Commencement of Cropping	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>I. Initial Investment</b>																				
- Farm Investment 1/	115,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2/	20,600	20,600	20,600	20,600	20,600	113,712	108,974	104,226	100,448	94,760	90,970	87,179	82,441	77,703	0	0	0	0	0	0
- House 3/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Orchard Irrigation System 4/	542,501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	712,399	20,600	20,600	20,600	20,600	113,712	108,974	104,226	100,448	94,760	90,970	87,179	82,441	77,703	0	0	0	0	0	0
<b>II. Returns from Farm Operation</b>																				
- Gross Value of Agricultural Production 5/	160,320	182,168	218,012	244,340	251,810	441,216	520,264	599,552	678,720	678,720	678,720	678,720	678,720	678,720	678,720	678,720	678,720	678,720	678,720	678,720
- Production Cost 6/	481,258	275,068	287,873	290,820	294,076	306,980	317,740	317,740	328,960	328,960	328,960	328,960	328,960	328,960	328,960	328,960	328,960	328,960	328,960	328,960
- OIM of Orchard system 7/	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
- Subtotal	-390,938	-122,902	-101,861	-76,480	-25,734	104,838	130,744	261,812	319,760	319,760	319,760	319,760	319,760	319,760	319,760	319,760	319,760	319,760	319,760	319,760
<b>NET RETURNS BEFORE FINANCING</b>	-1,063,325	-143,502	-122,261	-97,060	-26,546	-9,076	21,770	147,576	219,314	225,000	228,790	232,581	237,319	178,887	277,840	319,760	319,760	319,760	319,760	319,760
<b>ACCUMULATED NET RETURNS</b>	-1,063,325	-1,206,827	-1,329,088	-1,426,168	-1,604,714	-1,693,790	-1,872,020	-1,524,444	-1,305,130	-1,060,100	-891,340	-618,759	-381,440	-202,783	75,077	394,837	714,597	1,034,357	1,354,117	1,673,877
<b>III. Financing</b>																				
- Loan from PBDAC for Crop Farming 8/	240,628	137,534	143,637	145,410	148,038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Loan from PBDAC for Orchard Investment 9/	687,501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Subtotal</b>	898,129	137,534	143,637	145,410	148,038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>IV. Repayment of Loan</b>																				
- Repayment to PBDAC for Crop Farming	267,097	152,863	138,630	161,405	164,322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Repayment to PBDAC for Orchard Investment	0	0	0	0	0	0	0	0	186,875	158,863	146,850	138,825	128,825	116,813	106,800	98,786	88,775	78,763	0	0
<b>Subtotal</b>	267,097	152,863	138,630	161,405	164,322	0	0	0	186,875	158,863	146,850	138,825	128,825	116,813	106,800	98,786	88,775	78,763	0	0
<b>V. Net Cash Flow</b>	-52,223	-155,831	-138,663	-115,075	-77,488	-9,076	21,770	147,576	52,438	58,137	61,940	95,743	110,484	61,544	171,090	222,972	232,985	242,997	242,997	242,997
<b>Result</b>																				
- IRR: 20%																				
- NPV at discount rate of 13.5%: LE 342,542 (Total), LE 1,713 (Per Faddem)																				

Notes: 1/ Farm Shed, Equipment, etc.  
 2/ Estimated at LE 10,000 per faddem; terms of payment: 30% at the time of contract (5th year) and the balance actual installment over 9 years with interest rate at 8% during initial 4 years reclaimed land is provided to sellers at rental basis and annual cost for it is 2% of the total land cost which is deductible from land cost.  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 5,287 per faddem.  
 5/ Market price of output.  
 6/ Cost of actually purchased inputs expressed in market price.  
 7/ Estimated at LE 150/ha for annual inputs costs and at LE 415/ha for replacement of equipment incurred in 7th and 15th year and at LE 824/ha in the 15th year.  
 8/ 50% of farm inputs; repayment in the same year after harvest with interest rate at 11%.  
 9/ Repayment over 10 years with grace period of 7 years and interest rate at 15%.

Table H-25 Financial Analysis of Model Farm

(8) Model Farm No. 8

Category of Seller: Small Scale Investor  
 Land Holding Size: 103 Feddians; Cultivable Area: 200 Feddians/Year  
 Proposed Farming System: Cattle Rearing & Fodder Crops (Sorghum & Berseem) and Other Perennial Crops

Year in Order After Commencement of Cropping	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>I. Initial Investment</b>																				
- Farm Investment 1/	250,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2/	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
- House 3/	34,285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- On-farm Irrigation System 4/	790,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	1,064,285	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
<b>II. Returns from Farm Operation</b>																				
- Gross Value of Agricultural Production 5/	295,950	338,700	427,450	540,550	644,940	660,180	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285	664,285
- Production Cost 6/	192,000	454,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626	468,626
- Cost of On-farm system 7/	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000
<b>Net Farm Returns</b>	67,950	-151,926	24,824	295,924	300,314	355,554	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659	359,659
<b>NET BALANCE BEFORE FINANCING</b>	-987,015	-172,526	4,214	265,319	54,014	239,502	190,365	253,403	257,193	262,679	266,669	270,460	275,194	279,928	284,662	289,396	294,130	298,864	303,598	308,332
<b>ACCUMULATED NET BALANCE</b>	-987,015	-1,159,541	-1,165,326	-900,011	-645,997	-408,195	-409,830	-156,427	100,768	340,645	630,314	900,774	1,175,972	1,513,908	1,919,247	2,334,525	2,892,164	3,049,803	3,407,442	
<b>III. Financing</b>																				
- Loan from PBDAC for Crop Farming 8/	98,040	337,313	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318
- Loan from PBDAC for On-farm Investment 9/	1,010,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sub-totals</b>	1,108,040	337,313	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318	340,318
<b>IV. Repayment of Loan</b>																				
- Repayment to PBDAC for Crop Farming	106,604	130,217	136,833	143,546	150,259	101,933	194,333	175,267	42,867	0	0	0	0	0	0	0	0	0	0	0
- Repayment to PBDAC for On-farm Investment	0	0	0	0	0	0	0	0	252,500	237,350	222,200	207,050	191,900	176,750	161,600	146,450	131,300	116,150	0	0
<b>Sub-totals</b>	106,604	130,217	136,833	143,546	150,259	101,933	194,333	175,267	280,367	237,350	222,200	207,050	191,900	176,750	161,600	146,450	131,300	116,150	0	0
<b>V. Net Cash Flow</b>	2,416	34,570	210,640	251,054	39,128	137,869	2,022	75,136	-78,174	75,529	44,499	63,410	83,298	103,614	143,719	211,189	278,338	241,489	357,639	357,639

Notes:  
 1/ IRR: 14%  
 2/ NPV at discount rate of 13.5%: LE 54,104 (TDAM), LE 270 (Per Feddan)

Note 1/ Farm Shed, Equipment, etc.  
 2/ Estimated at LE 10,000 per Feddan; terms of payment: 30% at the time of contract (5th year) and the balance equal installment over 3 years with interest rate at 6% during initial 4 years; remainder land is provided to sellers on rental basis and annual cost for it is 2% of the total land cost which is deductible from land cost.  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 7,600 per Feddan.  
 5/ Market price of outputs other than fodder crops.  
 6/ Cost of initially purchased inputs expressed in market price (cost of fodder is excluded).  
 7/ Estimated at LE 180/ Fed. for annual routine works and at LE 523/Fed. for replacement of equipment incurred in 2th & 15th year and LE 1,428 in 14th year.  
 8/ 50% of farm inputs; repayment after harvest with interest rate at 11%; for investment in equal installment over 3 years and interest rate at 13%.  
 9/ Repayment over 10 years with grace period of 7 years and interest rate of 15%.

Table H-25 Financial Analysis of Model Farm

(7) Model Farm No. 7

Category of Seller: Graduate  
 Land holding Size: 10 Feddians; Cultivable Area: 20 Feddians/year  
 Proposed Farming System: Perennial Crops (Broad beans, Fresh Tomato, Cattlehouse, etc.) and Pech

Year in Crop After Commencement of Cropping	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>I. Initial Investment</b>																				
- Farm Investment 1/	35,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2/	600	600	600	600	3,496	3,386	3,275	3,165	3,054	2,944	2,834	2,723	2,612	2,502	2,392	2,282	2,171	2,061	1,950	0
- House 3/	22,889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Orchard Irrigation System 4/	43,520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	121,909	600	600	600	3,496	3,386	3,275	3,165	3,054	2,944	2,834	2,723	2,612	2,502	2,392	2,282	2,171	2,061	1,950	0
<b>II. Returns from Farm Operation</b>																				
- Gross Value of Agricultural Production 5/	31,795	45,750	67,725	75,795	90,715	96,127	100,954	106,877	110,285	110,285	110,285	110,285	110,285	110,285	110,285	110,285	110,285	110,285	110,285	110,285
- Production Costs 6/	30,394	29,629	30,810	31,462	35,037	35,182	35,329	35,474	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620
- Cost of Orchard System 7/	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900
Net Farm Returns	-3,499	10,311	32,015	39,333	50,778	56,045	60,625	66,503	69,765	69,765	69,765	69,765	69,765	69,765	69,765	69,765	69,765	69,765	69,765	69,765
<b>NET BALANCE BEFORE FINANCING</b>																				
ACCUMULATED NET BALANCE	-125,485	9,811	31,415	39,233	47,262	52,658	50,350	43,328	46,711	66,621	66,921	67,042	67,152	61,463	60,273	67,483	67,584	67,704	67,815	69,765
	-125,485	-115,574	-84,159	-49,826	2,456	55,115	105,465	168,800	235,514	302,335	369,256	436,206	503,460	569,923	635,196	692,679	760,273	827,977	895,792	965,557
<b>III. Financing</b>																				
- Loan from PBDAC for Crop Farming 8/	30,394	29,629	30,810	31,462	35,037	35,182	35,329	35,474	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620
- Loan from PBDAC for Orchard Investment 10/	68,820	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	128,914	29,629	30,810	31,462	35,037	35,182	35,329	35,474	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620	35,620
<b>IV. Repayment of Loan</b>																				
- Repayment to PBDAC for Crop Farming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Repayment to PBDAC for Orchard Investment	33,737	33,121	34,199	34,923	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081
Subtotal	33,737	33,121	34,199	34,923	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081	36,081
V. Net Cash Flow	-30,308	5,629	28,028	35,572	43,428	48,780	50,350	62,333	42,021	43,669	45,327	46,047	46,473	44,222	44,510	53,199	54,708	56,374	67,815	69,765

Notes:  
 1/ IRR: 31%  
 2/ NPV: discount rate of 13.5%, LE 175 012 (total), LE 8 795 (Per Feddian)  
 3/ Estimated at LE 3,000 per feddian; terms of payment: equal repayments over 15 years from 5th year with interest rate of 6%.  
 4/ During initial 4 years retained land is provisioned to furnish a rental basis and annual cost for it is 2% of the total land cost which is deductible from land cost.  
 5/ Includes costs for land and for services of electricity, water, etc.  
 6/ Estimated at LE 5,000 per feddian.  
 7/ Market price of outputs.  
 8/ Cost of actually purchased inputs, expressed in market price.  
 9/ Estimated at LE 245/ha, for annual routine works and at LE 710/ha, for replacement of equipment incurred in 7th & 15th year and LE 580 in 14th year.  
 10/ 100% of term inputs; repayment after harvests with interest rate at 11%.  
 11/ Repayment over 10 years with grace period of 7 years and interest rate of 15%.

Table H-25 Financial Analysis of Model Farm

(B) Model Farm No. 8

Category of Seller: Graduate  
 Land Holding Size: 10 Feedlots; Cultivable Area: 20 Feedlots/year  
 Proposed Farming System: Cattle Farming with Fodder Crops (Sorghum & Berseem) and Vegetables

Year in Order After Commencement of Cropping	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
I. Initial Investment	28,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Investment 1/	600	600	600	600	3,496	3,356	3,275	3,165	3,054	2,944	2,834	2,723	2,613	2,502	2,392	2,282	2,171	2,061	1,950	0
- Farm Land 2/	22,866	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- House 3/	57,280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- On-farm Irrigation System 4/	119,346	600	600	600	3,496	3,356	3,275	3,165	3,054	2,944	2,834	2,723	2,613	2,502	2,392	2,282	2,171	2,061	1,950	0
Total	208,172	1,200	1,200	1,200	7,092	6,712	6,550	6,330	6,108	5,886	5,664	5,442	5,220	5,000	4,778	4,556	4,334	4,112	3,890	3,668
II. Returns from Farm Operation																				
- Gross Value of Agricultural Production 5/	36,170	51,623	77,394	86,467	90,715	91,565	92,115	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915
- Production Cost 6/	25,808	33,978	34,898	33,598	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762
- Cost of On-farm system 7/	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Net Farm Returns	6,362	13,645	38,496	48,869	49,953	50,803	51,353	52,153	52,153	52,153	52,153	52,153	52,153	52,153	52,153	52,153	52,153	52,153	52,153	52,153
NET BALANCE BEFORE FINANCING	-112,984	13,147	37,898	47,991	48,457	47,417	42,776	40,968	40,099	39,229	38,359	37,489	36,619	35,749	34,879	34,009	33,139	32,269	31,399	30,529
ACCUMULATED NET BALANCE	-112,984	-99,837	-61,941	-14,350	22,107	79,524	122,302	171,290	220,389	269,588	318,917	368,307	417,887	467,636	507,699	556,970	606,952	657,044	707,247	758,400
III. Financing																				
- Loan from PBDAC for Crop Farming 8/	25,808	33,978	34,898	33,598	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762
- Loan from PBDAC for On-farm Investment 9/	92,680	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total	121,688	33,978	34,898	33,598	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762	36,762
IV. Repayment of Loan																				
- Repayment to PBDAC for Crop Farming	26,647	37,605	38,737	36,659	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868
- Repayment to PBDAC for On-farm Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total	26,647	37,605	38,737	36,659	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868	40,868
V. Net Cash Flow	-15,943	9,420	34,057	43,926	42,413	47,417	42,776	48,968	25,129	26,677	26,225	29,775	31,323	27,977	29,171	30,988	37,518	39,066	36,703	52,153
Result																				
- IRR: 33%																				
- NPV at discount rate of 15.5%: LE 7,507 (Per Fodder)																				

Note: 1/ Seed, Machinery, Equipment, etc.  
 2/ Estimated at LE 3,000 per feddan; the cost for land shall be calculated at the fifth year from commencement of farm operation.  
 3/ During initial 4 years reclaimed land is provided (farmer on rental basis and annual cost for it is 2% of the total land cost)  
 4/ Estimated at LE 5,726 per feddan  
 5/ Market price of sorghum  
 6/ Cost of actually purchased inputs expressed in market price  
 7/ Estimated at LE 200/ha, for annual inputs water and at LE 500/ha, for replacement of equipment incurred in 7th & 15th year and LE 400 in 14th year  
 8/ 100% of farm inputs; repayment after harvest with interest rate of 11%  
 9/ Repayment over 10 years with grace period of 7 years and interest rate of 15%

Table H-25 Financial Analysis of Model Farm

(9) Model Farm No. 9

Category of Seller: Small Farmer

Land Holding Size: 10 Feddants, Cultivable Area: 20 Feddants/year

Proposed Farming System: Cattle Farming with, Wheat, Fodder Crops (Sorghum & Barley) and Vegetables

Year in Order After Commencement of Cropping	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
I. Initial Investment																				
- Farm Investment 1/	36,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Farm Land 2/	600	600	600	600	3,486	3,366	3,275	3,165	3,054	2,944	2,834	2,723	2,613	2,502	2,392	2,282	2,171	2,061	1,950	0
- House 3/	22,866	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Orchard Irrigation System 4/	57,200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	119,266	600	600	600	3,486	3,366	3,275	3,165	3,054	2,944	2,834	2,723	2,613	2,502	2,392	2,282	2,171	2,061	1,950	0
II. Returns from Farm Operation																				
- Gross Value of Agricultural Production 5/	36,170	51,625	77,394	85,487	90,715	91,565	92,115	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915	92,915
- Production Cost 6/	23,903	31,978	32,968	31,396	34,662	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862
- Cost of Orchard system 7/	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980	3,980
Net Farm Returns	8,287	15,667	40,416	50,111	51,673	52,723	47,943	54,073	54,073	54,073	54,073	54,073	54,073	49,173	48,743	54,073	54,073	54,073	54,073	54,073
NET BALANCE BEFORE FINANCING	-111,014	15,067	38,618	49,511	48,377	49,337	44,688	50,908	51,019	51,129	51,239	51,350	51,460	46,871	46,351	51,791	51,902	52,012	52,123	54,073
ACCUMULATED NET BALANCE	-111,014	-95,947	-58,131	-8,620	41,757	91,094	135,782	186,670	237,689	288,818	340,057	391,407	442,887	495,538	535,869	587,650	639,582	691,584	743,717	797,790
III. Financing																				
- Loan from PBDAC for Cash Farming 8/	23,903	31,978	32,968	31,396	34,662	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862
- Loan from PBDAC for Orchard Investment 9/	95,100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	119,003	31,978	32,968	31,396	34,662	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862	34,862
IV. Reinvestment of Loan																				
- Reinvestment to PBDAC for Cash Farming	26,536	35,496	36,623	34,650	38,697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Reinvestment to PBDAC for Orchard Investment	0	0	0	0	0	0	0	0	23,870	22,532	21,094	19,655	18,217	16,779	15,340	13,903	12,464	11,026	0	0
Subtotal	26,536	35,496	36,623	34,650	38,697	0	0	0	23,870	22,532	21,094	19,655	18,217	16,779	15,340	13,903	12,464	11,026	0	0
V. Net Cash Flow	-12,814	11,549	36,186	46,097	44,547	49,337	44,663	50,803	57,049	28,387	30,145	31,695	33,243	29,892	31,011	37,048	39,439	40,996	52,123	54,073

Result  
 - IRR: 35%  
 - NPV at discount rate of 13.5%: LE 235,011 (1 Feddant), LE 11,790 (Per Feddant)

Note: 1/ Shed, Machinery, Equipment, etc.  
 2/ Estimated at LE 3,000 per feddant; the cost for land shall be calculated at the fifth year from commencement of farm operation; during initial 4 years reclaimed land is provided to farmer on rental basis and annual cost for it is 2% of the total land cost.  
 3/ Includes costs for land and for services of electricity, water, etc.  
 4/ Estimated at LE 5,723 per feddant.  
 5/ Market price of outputs.  
 6/ Cost of actually purchased inputs expressed in market price.  
 7/ Estimated at LE 198/feddant for annual routine works and at LE 533/feddant for replacement of equipment incurred in 7th, 8, 12th year and LE 480 in 14th year.  
 8/ 100% of farm income, repayment after harvest with interest rate at 11%.  
 9/ Repayment over 10 years with grace period of 7 years and interest rate of 15%.



Table H-26 Summary of Financial Analysis

Model Farm No.	Category of Settler	Land Holding Size (Fed.)	Annual Cultivable Area (Fed.)	Proposed Farming System	Turning Year <sup>1/</sup>	Expected Annual Surplus(LE) <sup>2/</sup>	FIRR (%) (20 years)	NVP in LE discount rate at 13.5%	
								Total	Per Fed.
1	Large scale investor	748	720	Fruits production	10th	4,022,280	15	1,108,044	1,539
2	Large scale investor	748	1156	Cattle fattening with fodder crops	10th	1,801,810	14	285,986	247
3	Large scale investor	748	1440	Dairy production with fodder crops	6th	7,807,880	28	15,484,164	10,753
4	Large scale investor	748	1440	Perennial crops	6th	2,188,900	25	3,317,601	2,304
5	Small scale investor	70	140	Perennial crops and Fruits production	15th	319,760	20	342,542	1,713
6	Small scale investor	103	200	Cattle fattening with fodder crops and vegetables	9th	357,639	14	54,104	270
7	Graduate	10	20	Perennial crops and Fruits production	5th	69,765	31	175,012	8,751
8	Graduate	10	20	Cattle fattening with fodder crops and vegetables	5th	52,153	33	150,142	7,507
9	Small Farmer	10	20	Cattle fattening with fodder crops and vegetables	5th	54,073	35	235,011	11,750

Note: 1/ A year when accumulated debt is written off  
 2/ After canceling payment for agricultural land and completing repayment for loans

Figure II-1 Self-sufficiency Rate of Major Foodstuff in Egypt (1992-94)

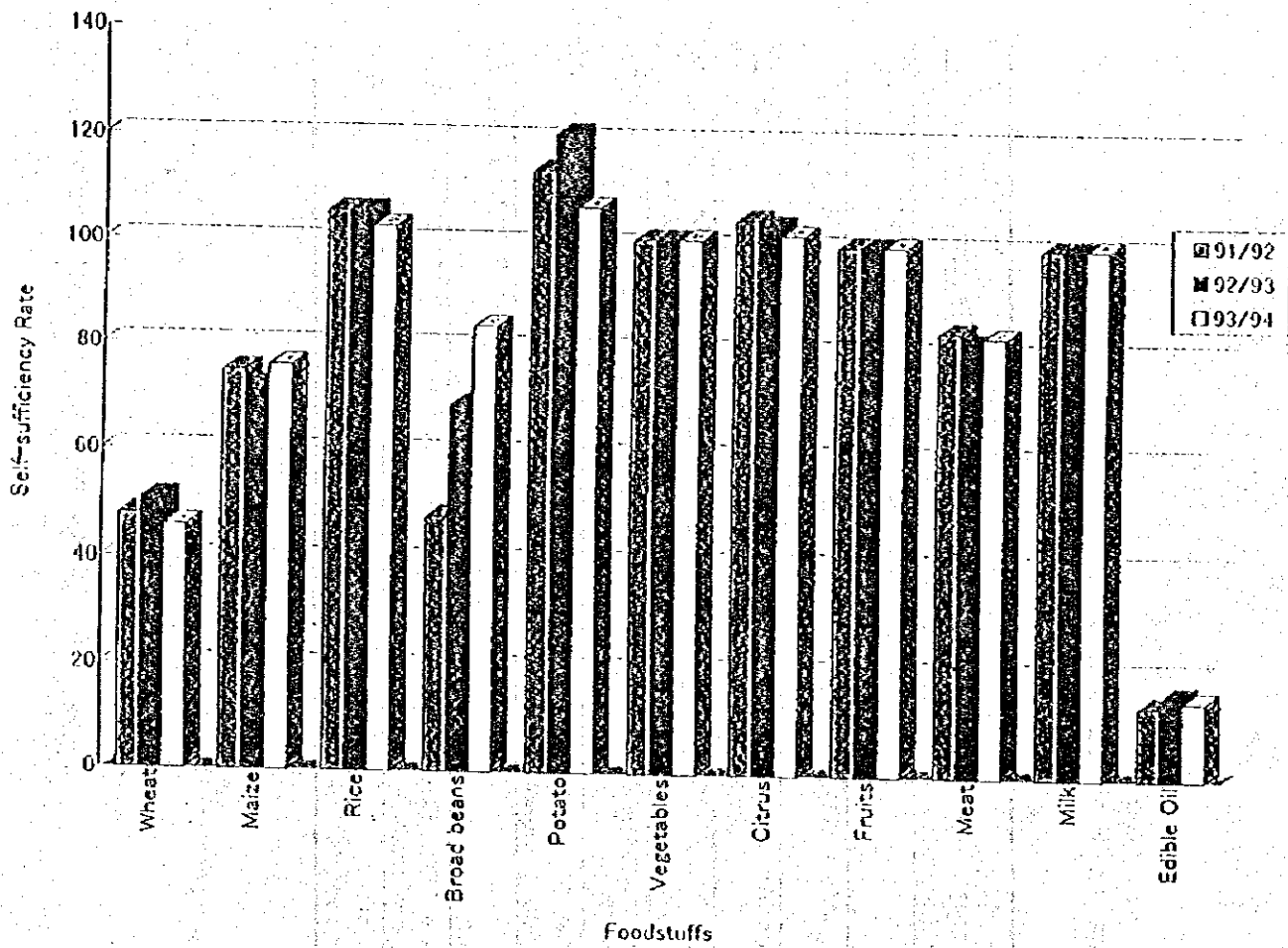


Figure II-2 Comparison of Crop Productivity

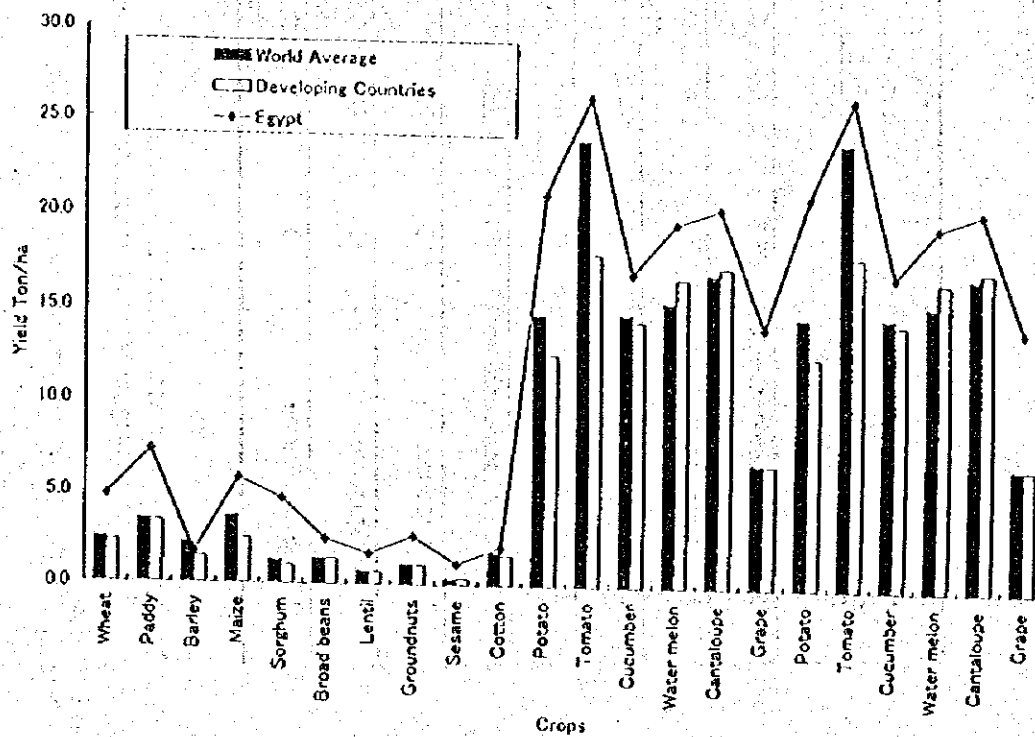
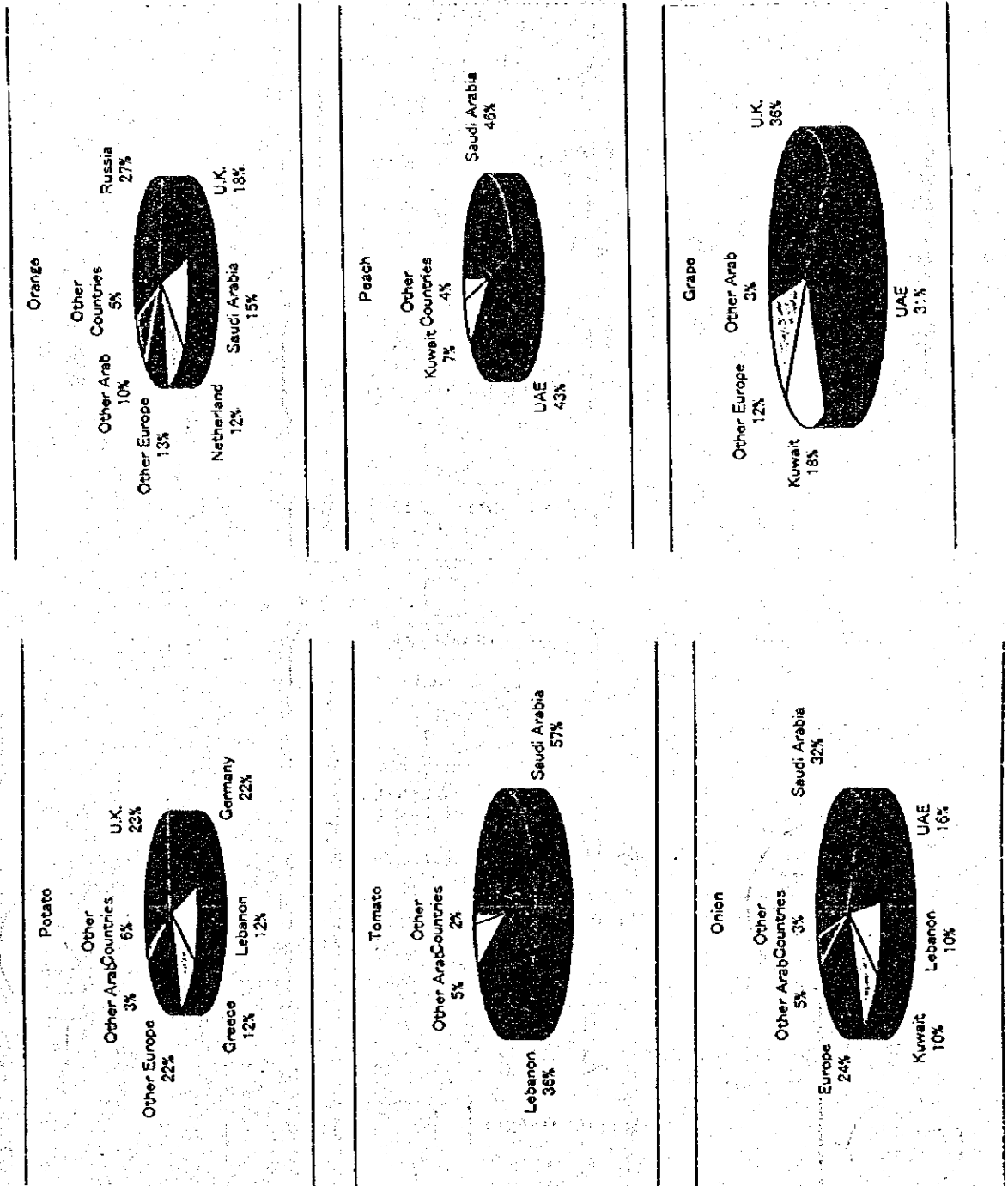
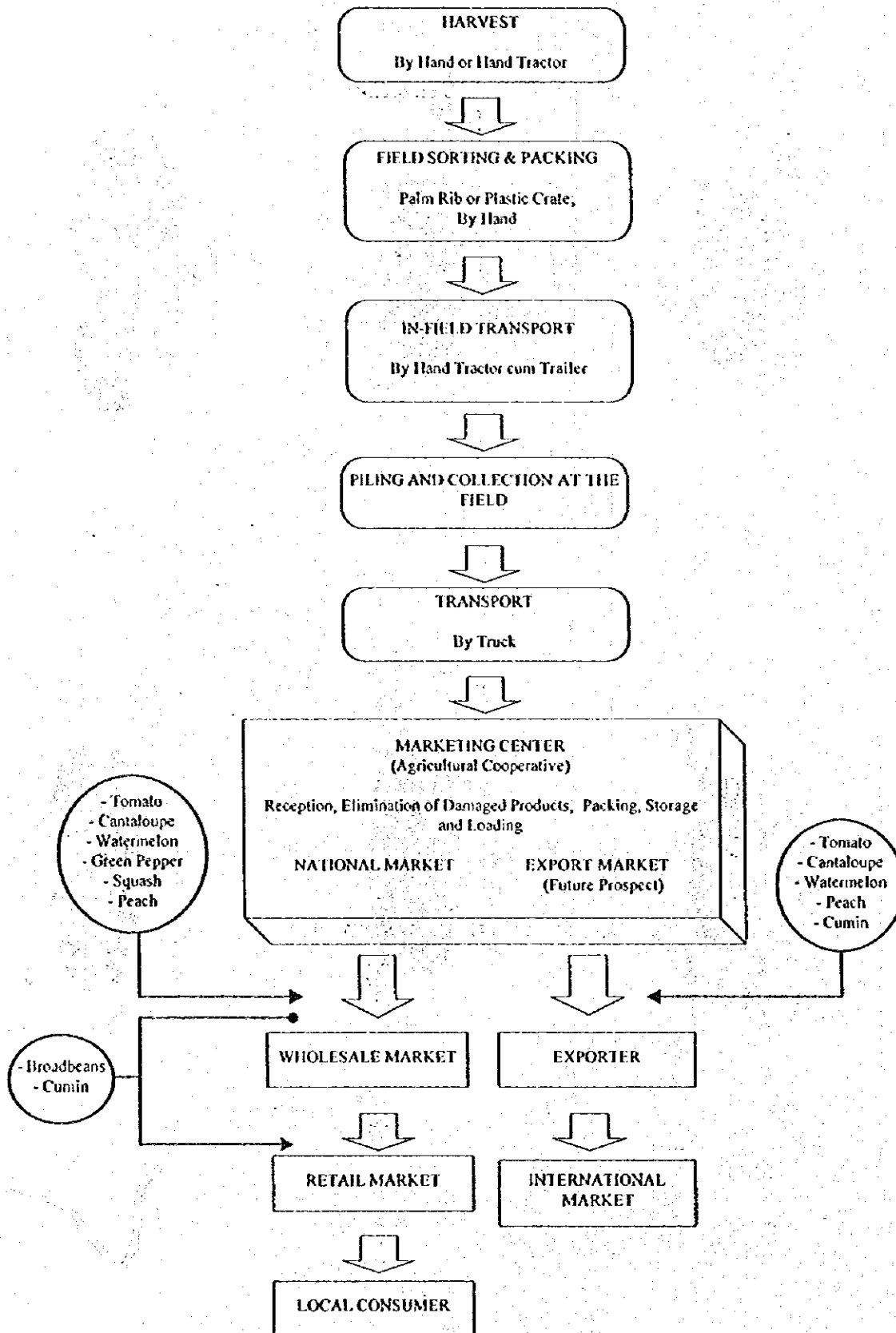


Figure H-3 Egyptian Agricultural Exports by Country (1995)



**Figure H - 4: Flow Chart for Marketing of Horticultural Crops  
(Small Farmers and Graduates)**



**APPENDIX I**

**COST ESTIMATE**

# Appendix I

## Cost Estimate

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Table I-1 Cost Estimation of Conveyance Facilities including No.7 Pump Station

Description	Qty	Unit	Foreign		Local		Remarks
			Rate(LE)	Cost(LE)	Rate(LE)	Cost(LE)	
<b>1. No.7 Pump Station</b>							
<b>1.1 Pump and its Ancillaries</b>							
Pump	8	No.	2,936,000	23,488,000	734,000	5,872,000	
Motor	8	No.	4,178,000	33,424,000	1,044,000	8,352,000	
Valve	1	LS	9,033,000	9,033,000	2,258,000	2,258,000	
Piping	1	LS	10,478,000	10,478,000	2,619,000	2,619,000	
Crane & Others	1	LS	6,143,000	6,143,000	1,536,000	1,536,000	
Electrical Equipment	1	LS	12,465,000	12,465,000	3,116,000	3,116,000	
Installation (15% of above)	1	LS	14,252,500	14,252,500	3,563,000	3,563,000	
<b>1.2 Sub Station (Open Type)</b>	1	LS	54,192,000	54,192,000	13,548,000	13,548,000	Open Type Station
<b>1.3 Building</b>							
Pump House	1580	sqm	250	395,000	750	1,185,000	
Sub Station House	1200	sqm	125	150,000	375	450,000	
<b>1.4 Civil Work</b>							
Concrete	14455	cum	298	4,300,383	553	7,986,388	
Second Class Concrete	1600	cum	53	84,000	123	196,000	
Excavation	55553	cum	1	29,860	2	69,579	
Backfill	32707	cum	0	14,882	1	44,645	
Embankment	19332	cum	1	12,566	2	37,697	
Disposal	22845	cum	1	17,990	2	53,971	
Foundation	10800	m	105	1,134,000	195	2,106,000	Pile (D0.8 x 25m) x 432 No.
Others (20% of above)	1	LS		1,118,732		2,102,856	
Accommodation (20% of above)	1	LS		1,342,476		2,523,427	
<b>1.5 Total</b>				172,075,371		57,639,564	
<b>2. Pipeline</b>	12600	m	22,778	287,004,310	28,691	361,506,343	
<b>3. Open canal</b>	24600	m	950	23,365,154	2,766	68,048,741	
<b>4. Box culvert</b>	7800	m	8,158	63,634,674	15,738	122,752,925	
<b>5. Electric Transmission</b>	4000	m	275	1,100,000	275	1,100,000	
<b>6. Regulating Reservoir (Intake side)</b>							
<b>6.1 Civil work</b>							
Concrete	8048	cum	298	2,394,280	553	4,448,520	
Riprap(T=30cm)	2206	cum	16	35,296	64	141,184	
Gravel	1200	cum	4	4,800	36	43,200	
Excavation	152448	cum	1	81,941	2	245,822	
Embankment	157363	cum	1	102,286	2	306,858	
Surface Trimming	29040	cum	1	29,722	4	89,165	
Soil Transportation	78682	cum	1	61,962	2	185,886	
Others (20% of above)	1	LS		542,057		1,091,727	
<b>6.2 Gate</b>	16	No.	10,000	160,000	10,000	160,000	
<b>6.3 Total</b>				3,412,344		6,710,362	
<b>7. Regulating Reservoir (Outlet side)</b>							
<b>7.1 Civil work</b>							
Concrete	8700	cum	298	2,588,250	553	4,806,760	
Riprap(T=30cm)	1920	cum	16	30,720	64	122,880	
Gravel	860	cum	4	3,440	36	30,960	
Excavation	134600	cum	1	72,348	2	217,043	
Embankment	84480	cum	1	54,912	2	164,736	
Surface Trimming	15080	cum	1	19,453	4	58,360	
Soil Transportation	43653	cum	1	34,377	2	103,130	
Others (20% of above)	1	LS		560,700		1,100,772	
<b>7.2 Gate</b>	4	No.	22,500	90,000	22,500	90,000	
<b>7.3 Total</b>				3,454,199		6,694,630	
<b>8. Spillway</b>							
<b>8.1 Civil work</b>							
Concrete	2513	cum	298	747,618	553	1,388,433	
Riprap(T=30cm)	467	cum	16	7,472	64	29,888	
Excavation	51996	cum	1	27,947	2	83,842	
Embankment	3630	cum	1	2,360	2	7,079	
Surface Trimming	7500	m	1	9,675	4	29,625	
Soil Transportation	2750	m	1	2,166	2	6,497	
Others (20% of above)	1	LS		159,447		308,953	
<b>8.2 Gate</b>	3	No.	189,000	567,000	21,000	63,000	
<b>8.4 Total</b>				1,523,684		1,916,715	
<b>9. One way surge tank</b>	6	No.	568,757	3,412,541	554,096	3,324,568	
<b>10. Grand Total.</b>				558,982,277		629,693,849	

Table I-2 Unit Cost Estimation of Conveyance Facilities of Pipeline, Canal and Culvert

Description	Qty	Unit	Foreign		Local		Remarks
			Rate(LE)	Cost(LE)	Rate(LE)	Cost(LE)	
1. Pipeline							
1.1 Pipe cost	4	m	5,360	21,438	6,551	26,202	
1.2 Earth work							
Excavation	270	cum	1	145	2	435	
Embankment(Manual)	106	cum	0	0	3	324	
Embankment(Machine)	134	cum	1	87	2	261	
Others (10% of above)	1	LS		23		102	
1.3 Others (5% of above)	1	LS		1,085		1,366	
1.4 Total per meter				22,778		28,691	
2. Open canal							
2.1 Concrete	8	cum	60	450	140	1,050	
2.2 PE film	30	sqm	5	135	14	406	
2.3 Riprap lining	7	cum	16	106	64	422	
2.4 Asphalt paving	8	sqcm	17	132	39	308	
2.5 Gravel paving	8	sqcm	2	14	16	130	
2.6 Earth work							
Excavation	60	cum	1	32	2	97	
Embankment	31	cum	1	20	2	61	
Surface trimming	32	cum	1	41	4	123	
Gravel foundation	5	cum	4	19	36	169	
2.7 Total per meter				950		2,766	
3. Box culvert							
3.1 Earth work							
Excavation	96	cum	1	51	2	154	
Embankment	156	cum	1	101	2	304	
Soil transportation	100	cum		79	2	236	
Gravel & soil mixture	3	cum	6	15	10	25	
3.2 Concrete							
Mortared riprap	6	cum	16	96	64	384	
Concrete	22	cum	298	6,411	553	11,906	
Lean concrete	1	cum	53	45	123	105	
3.3 Others (20% of above)				1,360		2,623	
3.4 Total per meter				8,158		15,738	
4. One way surge tank							
4.1 Earth work							
Excavation	2730	cum	1	1,467	2	4,402	
Embankment	2220	cum	1	1,443	2	4,329	
4.2 Concrete work							
Concrete	915	cum	298	272,213	553	505,538	
Plain concrete	54	cum	60	3,240	140	7,560	
4.3 Metal works							
Sluice valve (D700)	2	No.	45,900	91,800	5,100	10,200	
Check valve (D700)	2	No.	32,130	64,260	3,570	7,140	
Sleeve coupling (D700)	2	No.	30,600	61,200	3,400	6,800	
Float valve	1	No.	6,120	6,120	680	680	
Others (30% of above)	1	LS		67,014		7,446	
4.4 Total per number				568,757		554,095	



Table I-3 Cost Estimation of Water Management Facilities

Description	Qty	Unit	Foreign		Local		Remarks
			Rate(LE)	Cost(LE)	Rate(LE)	Cost(LE)	
1. Sub mater station in Qanlara	1	LS		347,000		87,000	
Allocation to the Study area (x135/400)	1	LS		98,028		24,578	
2. RTU station	3	No.	35,000	105,000	8,700	26,100	
3. Voice radio station (Zonal office)							
Office	200	sqm	75	15,000	225	45,000	
Vehicle	1	No.	48,000	48,000	12,000	12,000	
Wireless loaded in vehicle	1	No.	8,000	8,000	2,000	2,000	
VHF 50W voice chanel	1	No.	6,400	6,400	1,600	1,600	
Handy wireless	1	No.	2,100	2,100	530	530	
Total				79,500		61,130	
4. Total (Invested in 2001)				283,000		112,000	Labour Included
5. Labour cost						28,000	Skilled
						5,600	Common

Table I-4 Construction Schedule and Costs related to Agricultural Infrastructure

Unit: 10<sup>3</sup> LE

	1997		1998		1999		2000		2001		Total	
	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1. Main Irrigation Canal					20,110	53,661					20,110	53,661
		(1) 27 km					26,090	69,623			26,090	69,623
		(2) 44 km			59,838	151,321					59,838	151,321
2. Branch/Distribution Irrigation Canal		(1) 245 km					34,156	82,679			34,156	82,679
		(2) 138 km							18,431	49,719	18,431	49,719
		(3) 81 km			10,452	53,227					10,452	53,227
3. Main/Branch Drainage Canal		(1) 195 km					12,276	59,239			12,276	59,239
		(2) 204 km							5,297	24,076	5,297	24,076
		(3) 77 km			6,164	19,787					6,164	19,787
4. Land Development		(1) 54,510 Fed.					7,251	21,545			7,251	21,545
		(2) 36,050 Fed.							854	3,530	854	3,530
		(3) 20,440 Fed.										
Sub-total	0	0	0	0	96,564	277,996	79,773	233,086	24,582	77,325	200,919	588,407
Total	0	0	0	0	374,560		312,859		101,907		789,326	

Note: Each item include following construction cost.

- 3: Main Irrigation Canal, Check Gate, Syphon
- 4: Branch/distribution Canal, Bridge, Division Work, Intake to Night Storage, Check Gate, Tail-end Spillway
- 5: Main/Branch Drainage Canal
- 6: Trunk Road, Farm Land Preparation, Shelterbelts