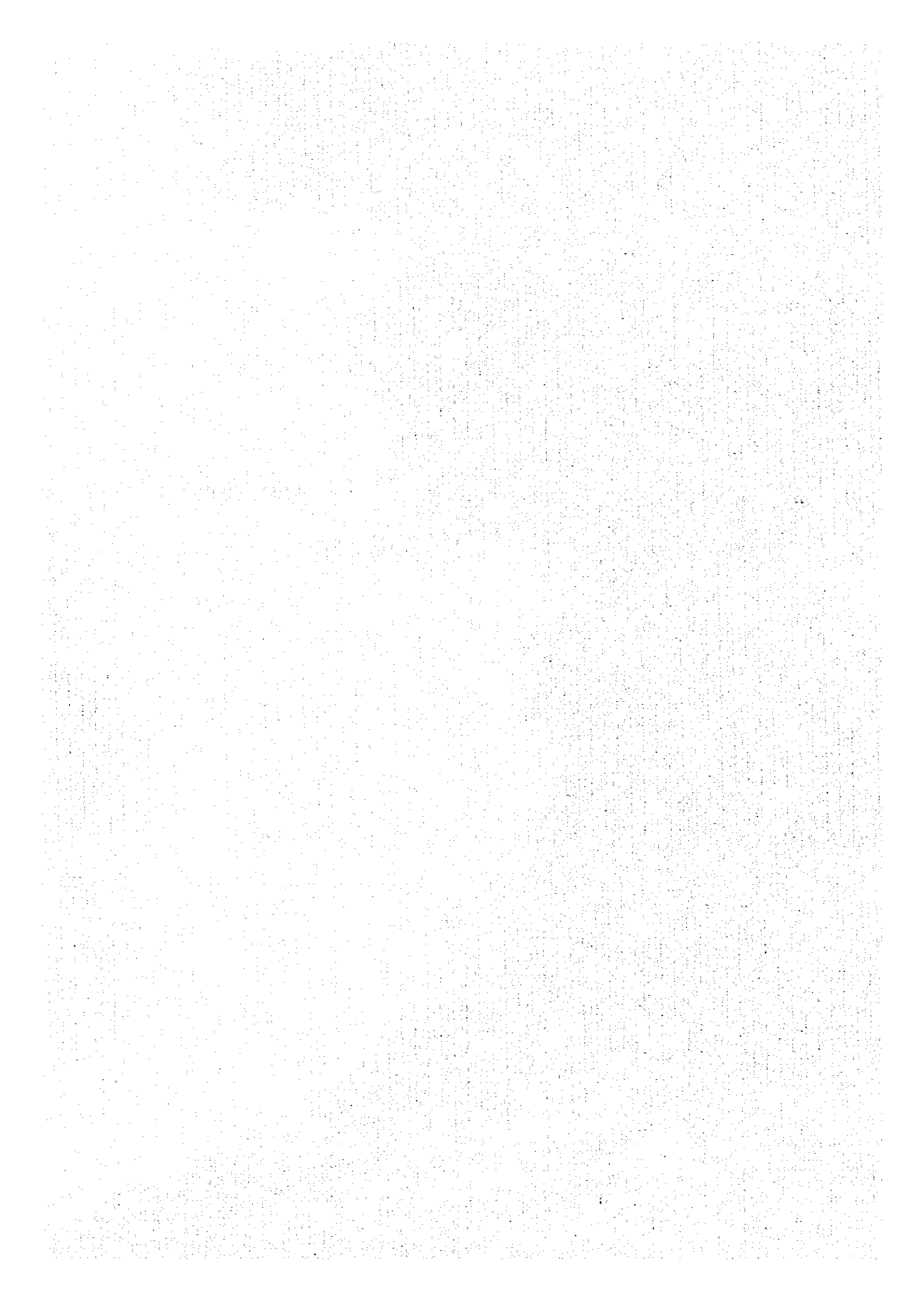


APPENDIX L
PROJECT EVALUATION



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Part I

Table L-1-1 Farmland Use Sredna Tunja
Current Farmland Use

	Binkos Marash	Kerman Roza	Nova Zagora	Mlekarevo	(ha)	Nova Zagora M3	
Study Area	35,000	19,600	22,400	20,000	97,000	13,220	
Service area	33,174	19,358	22,400	20,000	94,932	13,200	
Wheat	33.2	11,014	6,427	7,437	6,640	31,517	4,382
Barley	18.0	5,971	3,485	4,032	3,600	17,088	2,376
Maize	10.0	3,317	1,936	2,240	2,000	9,493	1,320
Sunflower	15.0	4,976	2,904	3,360	3,000	14,240	1,980
Sugarbeet	0.1	42	24	28	25	120	17
Tabacco	0.0	0	0	0	0	0	0
Vegetables	5.0	1,667	972	1,125	1,005	4,769	663
Fruit	4.1	1,360	794	918	820	3,892	541
Grapes	5.0	1,659	968	1,120	1,000	4,746	660
Alfalfa	2.9	962	562	650	580	2,754	383
Other crops	1.6	531	310	358	320	1,519	211
Unplanted or roads	5.0	1,675	978	1,131	1,010	4,794	667
	100.0	33,174	19,358	22,400	20,000	94,932	13,200

Future without Farmland Use

	Binkos Marash	Kerman Roza	Nova Zagora	Mlekarevo	(ha)	Nova Zagora M3	
Study Area	35,000	19,600	22,400	20,000	97,000	13,220	
Service area	33,174	19,358	22,400	20,000	94,932	13,200	
Wheat	33.2	11,014	6,427	7,437	6,640	31,517	4,382
Barley	18.0	5,971	3,485	4,032	3,600	17,088	2,376
Maize	10.0	3,317	1,936	2,240	2,000	9,493	1,320
Sunflower	15.0	4,976	2,904	3,360	3,000	14,240	1,980
Sugarbeet	0.1	42	24	28	25	120	17
Tabacco	0.0	0	0	0	0	0	0
Vegetables	5.0	1,667	972	1,125	1,005	4,769	663
Fruit	4.1	1,360	794	918	820	3,892	541
Grapes	5.0	1,659	968	1,120	1,000	4,746	660
Alfalfa	2.9	962	562	650	580	2,754	383
Other crops	1.6	531	310	358	320	1,519	211
Unplanted	5.0	1,675	978	1,131	1,010	4,794	667
	100	33,174	19,358	22,400	20,000	94,932	13,200

Future with Farmland Use

	Binkos Marash	Kerman Roza	Nova Zagora	Mlekarevo	(ha)	Nova Zagora M3	
Study Area	35,000	19,600	22,400	20,000	97,000	13,220	
Service area	33,174	19,358	22,400	20,000	94,932	13,200	
Wheat	32.9	10,931	6,378	7,381	6,590	31,280	4,349
Barley	17.0	5,639	3,291	3,808	3,400	16,138	2,244
Maize	13.0	4,313	2,517	2,912	2,600	12,341	1,716
Sunflower	13.0	4,313	2,517	2,912	2,600	12,341	1,716
Sugarbeet	1.0	332	194	224	200	949	132
Tabacco	0.0	0	0	0	0	0	0
Vegetables	4.0	1,327	774	896	800	3,797	528
Fruit	2.0	664	387	448	400	1,899	264
Grapes	3.0	995	581	672	600	2,848	396
Alfalfa	3.0	995	581	672	600	2,848	396
Other crops	5.0	1,659	968	1,120	1,000	4,747	660
Unplanted	6.1	2,007	1,171	1,355	1,210	5,744	799
	100	33,174	19,358	22,400	20,000	94,932	13,200

NOTE : Vegetables includes melon and Alfalfa includes fodder maize and pasture.

Table L -1-2 Farmland Use ROSITZA

Current Farmland Use

		North Main Canal	Main Left Nikyupski Canal	Main Lower Right Canal	(ha)
Study Area		29,295.5	9,384.5	12,020.0	50,700.0
Service area		28,959.6	9,377.5	12,010.6	50,347.7
Wheat	25	7,240	2,344	3,003	12,587
Barley	11	3,186	1,032	1,321	5,538
Maize	12	3,475	1,125	1,441	6,042
Sunflower	16.5	4,778	1,547	1,982	8,307
Sugarbeet	1	290	94	120	503
Tabacco	0	0	0	0	0
Vegetables	4.5	1,303	422	540	2,266
Fruit	4.5	1,303	422	540	2,266
Grapes	2.5	724	234	300	1,259
Alfalfa	13.5	3,910	1,266	1,621	6,797
Other crops	2.5	724	234	300	1,259
Unplanted	7	2,027	656	841	3,524
	100	28,960	9,378	12,011	50,348

Future without Farmland Use

		North Main Canal	Main Left Nikyupski Canal	Main Lower Right Canal	(ha)
Study Area		29,296	9,385	12,020	50,700
Service area		28,380	9,190	11,770	49,340
Wheat	25	7,240	2,344	3,003	12,587
Barley	11	3,186	1,032	1,321	5,538
Maize	12	3,475	1,125	1,441	6,042
Sunflower	16.5	4,778	1,547	1,982	8,307
Sugarbeet	1	290	94	120	503
Tabacco	0	0	0	0	0
Vegetables	4.5	1,303	422	540	2,266
Fruit	4.5	1,303	422	540	2,266
Grapes	2.5	724	234	300	1,259
Alfalfa	13.5	3,910	1,266	1,621	6,797
Other crops	2.5	724	234	300	1,259
Unplanted	7	2,027	656	841	3,524
	100	28,960	9,378	12,011	50,348

Future with Farmland Use

		North Main Canal	Main Left Nikyupski Canal	Main Lower Right Canal	(ha)
Study Area		29,296	9,385	12,020	50,700
Service area		28,380	9,190	11,770	49,340
Wheat	30	8,688	2,813	3,603	15,104
Barley	12	3,475	1,125	1,441	6,042
Maize	7.5	2,172	703	901	3,776
Sunflower	15	4,344	1,407	1,802	7,552
Sugarbeet	2.5	724	234	300	1,259
Tabacco	0	0	0	0	0
Vegetables	4.5	1,303	422	540	2,266
Fruit	4.5	1,303	422	540	2,266
Grapes	7	2,027	656	841	3,524
Alfalfa	8	2,317	750	961	4,028
Other crops	4	1,158	375	480	2,014
Unplanted	5	1,448	469	601	2,517
	100	28,960	9,378	12,011	50,348

NOTE : Vegetables includes melon and Alfalfa includes fodder maize and pasture.

Table L-2-1 SREDNA TUNJA
Present and Projected future Yield
 (kg/ha)

	Present	Future Without	Future With
Wheat	3,100	3,100	3,400
Barley	3,000	3,000	3,150
Maize	3,850	3,850	4,250
Sunflower	1,000	1,000	1,500
Sugarbeet	8,000	8,000	10,000
Tabacco	1,250	1,250	1,600
Vegetables	7,750	7,750	14,080
Fruit	3,500	3,500	6,250
Grapes	3,560	3,560	6,500
Alfalfa	3,000	3,000	3,900
Other crops	2,910	2,910	3,750

Note. Yield of Tobacco and Sugarbeet are referred to those of Petrich.

Table L-2-2 Rositza
Present and Projected future Yield
 (kg/ha)

	Present	Future Without	Future With
Wheat	3,000	3,000	3,460
Barley	2,900	2,900	3,060
Maize	2,600	2,600	4,200
Sunflower	1,200	1,200	1,580
Sugarbeet	15,000	15,000	18,000
Tabacco	1,250	1,250	1,600
Vegetables	8,000	8,000	14,000
Fruit	3,060	3,060	6,000
Grapes	3,370	3,370	6,250
Alfalfa	2,620	2,620	3,400
Other crops	880	880	1,150

Note. Yield of Tobacco and Sugarbeet are referred to those of Petrich.

Table L-3-1 SREDNA TUNJA
Future with projects area cropped, Yields, and Production

Service area	Binkos Marash		Karman Roza		Nova Zagora		Mlekarevo	
	Area cropped (ha)	Total Production(t)	Area cropped (ha)	Total Production(t)	Area cropped (ha)	Total Production(t)	Area cropped (ha)	Total Production(t)
Wheat	9,952	33,838	5,807	19,745	6,720	25,894	6,000	23,120
Barley	4,976	15,675	2,904	9,147	3,360	12,701	3,000	11,340
Maize	2,488	10,574	1,452	6,170	1,680	4,760	1,500	4,250
Sunflower	2,654	3,981	1,549	2,323	1,792	3,024	1,600	2,700
Sugarbeet	332	3,317	194	1,936	224	0	200	0
Tabacco	0	0	0	0	0	0	0	0
Vegetables	2,820	39,703	1,645	23,168	1,904	12,616	1,700	11,264
Fruit	3,649	22,907	2,129	13,309	2,464	13,300	2,200	11,875
Grapes	2,654	17,251	1,549	10,066	1,792	8,008	1,600	7,150
Alfalfa	2,322	9,057	1,355	5,285	1,568	7,862	1,400	7,020
Other crops	1,327	4,976	774	2,904	896	420	800	375
	33,174	161,179	19,358	94,052	22,400	88,585	20,000	79,094

Table L-3-2 ROSITZA
 Future with projects area cropped, Yields, and Production

Service area	North Main Canal		Main Left Nikyupski Canal		Main Lower Right Canal		(ha)
	Area cropped (ha)	Total Production(t)	Area cropped (ha)	Total Production(t)	Area cropped (ha)	Total Production(t)	
Wheat	8,688	30,060	2,813	9,734	3,603	10,389	
Barley	3,475	10,634	1,125	3,443	1,441	4,043	
Maize	2,172	9,122	703	2,954	901	6,053	
Sunflower	4,344	6,863	1,407	2,222	1,802	3,131	
Sugarbeet	724	13,032	234	4,220	300	2,162	
Tabacco	0	0	0	0	0	0	
Vegetables	1,303	18,245	422	5,908	540	7,567	
Fruit	1,303	7,819	422	2,532	540	3,243	
Grapes	2,027	12,670	656	4,103	841	1,877	
Alfalfa	2,317	7,877	750	2,551	961	5,513	
Other crops	1,158	1,332	375	431	480	345	
	27,512	117,654	8,909	38,098	11,410	44,323	

Table L-4-1 SREDNA TUNJA
Crop Budget

Wheat Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.1	3.1	3.4
Farmgate Price	(\$/ton)	223.2	174.3	174.3
Gross Value of production	(\$/ha)	691.9	540.4	592.7
Production costs excluding labor	(\$/ha)	234.2	219.4	249.7
Net value of production excluding labor	(\$/ha)	457.7	320.9	342.9
Labor requirement	(mandays/ha)	10.6	10.6	10.9

Barley Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3	3	3.15
Farmgate Price	(\$/ton)	169.2	186.5	186.5
Gross Value of production	(\$/ha)	507.7	559.6	587.6
Production costs excluding labor	(\$/ha)	214.3	199.5	229.3
Net value of production excluding labor	(\$/ha)	293.4	360.1	358.3
Labor requirement	(mandays/ha)	10.6	10.6	10.9

Maize Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.85	3.85	4.25
Farmgate Price	(\$/ton)	173.3	148.9	148.9
Gross Value of production	(\$/ha)	667.2	573.1	632.6
Production costs excluding labor	(\$/ha)	214.6	196.9	282.5
Net value of production excluding labor	(\$/ha)	452.5	376.2	350.2
Labor requirement	(mandays/ha)	40	40	45

Alfalfa Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.00	3.00	3.90
Farmgate Price	(\$/ton)	175.8	154.4	154.4
Gross Value of production	(\$/ha)	527.4	463.3	602.3
Production costs excluding labor	(\$/ha)	78.1	78.1	78.1
Net value of production excluding labor	(\$/ha)	449.3	385.2	524.2
Labor requirement	(mandays/ha)	15	15	19

Fruits Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.5	3.5	6.3
Farmgate Price	(\$/ton)	96.0	96.0	96.0
Gross Value of production	(\$/ha)	336.0	336.0	600.0
Production costs excluding labor	(\$/ha)	89.7	89.7	100.9
Net value of production excluding labor	(\$/ha)	246.3	246.3	499.1
Labor requirement	(mandays/ha)	96	96	134

Tobacco Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	1.3	1.3	1.6
Farmgate Price	(\$/ton)	2,405.7	2,053.4	2,053.4
Gross Value of production	(\$/ha)	3,007.1	2,566.7	3,285.4
Production costs excluding labor	(\$/ha)	592.4	505.6	503.9
Net value of production excluding labor	(\$/ha)	2,414.7	2,061.1	2,781.5
Labor requirement	(mandays/ha)	414	414	420

Table L-4-2 SREDNA TUNJA
Crop Budget

Sunflower Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	1.0	1.0	1.5
Farmgate Price	(\$/ton)	248.6	265.9	265.9
Gross Value of production	(\$/ha)	248.6	265.9	398.9
Production costs excluding labor	(\$/ha)	75.9	75.9	100.8
Net value of production excluding labor	(\$/ha)	172.7	190.0	298.1
Labor requirement	(mandays/ha)	7	7	81

Sugar Beet Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	8.0	8.0	10.0
Farmgate Price	(\$/ton)	29.7	28.2	28.2
Gross Value of production	(\$/ha)	237.3	225.6	281.9
Production costs excluding labor	(\$/ha)	48.6	48.6	78.8
Net value of production excluding labor	(\$/ha)	188.7	177.0	203.1
Labor requirement	(mandays/ha)	53	53	64

Vegetables Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	7.8	7.8	14.1
Farmgate Price	(\$/ton)	186.0	186.0	186.0
Gross Value of production	(\$/ha)	1,441.5	1,441.5	2,618.9
Production costs excluding labor	(\$/ha)	208.9	186.7	188.8
Net value of production excluding labor	(\$/ha)	1,232.6	1,254.8	2,430.0
Labor requirement	(mandays/ha)	285	285	311

Grapes Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.6	3.6	6.5
Farmgate Price	(\$/ton)	176.0	176.0	176.0
Gross Value of production	(\$/ha)	626.6	626.6	1144.0
Production costs excluding labor	(\$/ha)	112.3	106.4	112.7
Net value of production excluding labor	(\$/ha)	514.3	520.2	1031.3
Labor requirement	(mandays/ha)	177	177	261

Other crops Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.9	2.9	3.8
Farmgate Price	(\$/ton)	284.8	305.3	305.3
Gross Value of production	(\$/ha)	828.6	888.5	1145.0
Production costs excluding labor	(\$/ha)	77.9	73.5	85.5
Net value of production excluding labor	(\$/ha)	750.7	815.0	1059.5
Labor requirement	(mandays/ha)	177	177	261

Table L-4-3 ROSITZA

Crop Budget

Wheat Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.0	3.0	3.5
Farmgate Price	(\$/ton)	225.9	177.0	177.0
Gross Value of production	(\$/ha)	677.8	531.1	612.6
Production costs excluding labor	(\$/ha)	246.0	231.2	262.4
Net value of production excluding labor	(\$/ha)	431.8	299.9	350.1
Labor requirement	(mandays/ha)	10.6	10.6	10.9

Barley Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.9	2.9	3.06
Farmgate Price	(\$/ton)	172.0	189.3	189.3
Gross Value of production	(\$/ha)	498.7	548.9	579.1
Production costs excluding labor	(\$/ha)	224.8	210.0	241.6
Net value of production excluding labor	(\$/ha)	273.9	338.9	337.6
Labor requirement	(mandays/ha)	10.6	10.6	10.9

Malze Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.60	2.60	4.20
Farmgate Price	(\$/ton)	176.0	151.6	151.6
Gross Value of production	(\$/ha)	457.7	394.1	636.7
Production costs excluding labor	(\$/ha)	217.6	199.9	288.2
Net value of production excluding labor	(\$/ha)	240.1	194.3	348.5
Labor requirement	(mandays/ha)	40	40	45

Alfalfa Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.62	2.62	3.40
Farmgate Price	(\$/ton)	178.5	157.2	157.2
Gross Value of production	(\$/ha)	467.8	411.8	534.3
Production costs excluding labor	(\$/ha)	80.6	80.6	80.6
Net value of production excluding labor	(\$/ha)	387.2	331.2	453.7
Labor requirement	(mandays/ha)	27	27	27

Fruits Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.1	3.1	6.0
Farmgate Price	(\$/ton)	76.0	76.0	76.0
Gross Value of production	(\$/ha)	232.6	232.6	456.0
Production costs excluding labor	(\$/ha)	88.3	88.3	99.8
Net value of production excluding labor	(\$/ha)	144.3	144.3	356.2
Labor requirement	(mandays/ha)	231	231	259

Tobacco Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	1.3	1.3	1.6
Farmgate Price	(\$/ton)	2,408.4	2,056.1	2,056.1
Gross Value of production	(\$/ha)	3,010.5	2,570.1	3,289.8
Production costs excluding labor	(\$/ha)	598.1	511.3	509.6
Net value of production excluding labor	(\$/ha)	2,412.4	2,058.8	2,780.2
Labor requirement	(mandays/ha)	207	207	207

Table L-4-4 ROSITZA
Crop Budget

Sunflower Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	1.2	1.2	1.6
Farmgate Price	(\$/ton)	251.3	268.7	268.7
Gross Value of production	(\$/ha)	301.6	322.4	424.5
Production costs excluding labor	(\$/ha)	77.3	77.3	103.6
Net value of production excluding labor	(\$/ha)	224.3	245.1	320.9
Labor requirement	(mandays/ha)	79	79	81

Sugar Beet Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	15.0	15.0	18.0
Farmgate Price	(\$/ton)	29.9	28.4	28.4
Gross Value of production	(\$/ha)	448.6	426.6	511.9
Production costs excluding labor	(\$/ha)	49.4	49.4	83.3
Net value of production excluding labor	(\$/ha)	399.2	377.2	428.6
Labor requirement	(mandays/ha)	173	173	181

Vegetables Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	8.0	8.0	14.0
Farmgate Price	(\$/ton)	156.0	156.0	156.0
Gross Value of production	(\$/ha)	1,248.0	1,248.0	2,184.0
Production costs excluding labor	(\$/ha)	218.7	196.5	198.6
Net value of production excluding labor	(\$/ha)	1,029.3	1,051.5	1,985.4
Labor requirement	(mandays/ha)	285	285	311

Grapes Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.4	3.4	6.3
Farmgate Price	(\$/ton)	206.0	206.0	206.0
Gross Value of production	(\$/ha)	694.2	694.2	1287.5
Production costs excluding labor	(\$/ha)	115.5	109.6	116.1
Net value of production excluding labor	(\$/ha)	578.7	584.6	1171.4
Labor requirement	(mandays/ha)	177	177	273

Other crops Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	0.9	0.9	1.2
Farmgate Price	(\$/ton)	287.5	308.1	308.1
Gross Value of production	(\$/ha)	253.0	271.1	354.3
Production costs excluding labor	(\$/ha)	76.7	72.3	91.8
Net value of production excluding labor	(\$/ha)	176.2	198.8	262.4
Labor requirement	(mandays/ha)	177	177	273

Table L-5-1 SREDNA TUNJA**Present and Future Farmgate Price of Farm Products and Inputs**

Crops/Inputs	Unit	Present		Future	
		Economic	Financial	Economic	Financial
Wheat	\$/ton	223.2	321.0	174.3	249.4
Barley	\$/ton	169.2	211.8	186.5	233.7
Maize	\$/ton	173.3	217.0	148.9	186.0
Sunflower	\$/ton	248.6	302.6	265.9	323.9
Sugarbeet	\$/ton	29.7	37.3	28.2	35.4
Tabacco	\$/ton	2,405.7	3,161.6	2,053.4	2,698.0
Vegetables	\$/ton	186.0	186.0	186.0	186.0
Fruit	\$/ton	96.0	96.0	96.0	96.0
Grapes	\$/ton	176.0	176.0	176.0	176.0
Alfalfa	\$/ton	175.8	219.4	154.4	192.3
Other crops	\$/ton	284.8	448.4	305.3	481.5
Urea	\$/ton	258.3	405.8	199.2	310.6
Potassium Chloride	\$/ton	203.3	290.2	179.9	255.9
Phospate TSP	\$/ton	174.8	248.5	163.6	232.1

Table L -5-2 ROSITZA

Present and Future Farmgate Price of Farm Products and Inputs

Crops/Inputs	Unit	Present		Future	
		Economic	Financial	Economic	Financial
Wheat	\$/ton	225.9	324.0	177.0	252.4
Barley	\$/ton	172.0	214.8	189.3	236.7
Maize	\$/ton	176.0	220.0	151.6	189.0
Sunflower	\$/ton	251.3	305.6	268.7	326.9
Sugarbeat	\$/ton	29.9	37.5	28.4	35.7
Tabacco	\$/ton	2,408.4	3,164.6	2,056.1	2,701.0
Vegetables	\$/ton	156.0	156.0	156.0	156.0
Fruit	\$/ton	76.0	76.0	76.0	76.0
Grapes	\$/ton	206.0	206.0	206.0	206.0
Alfalfa	\$/ton	178.5	222.4	157.2	195.3
Other crops	\$/ton	287.5	451.4	308.1	484.5
Urea	\$/ton	261.0	408.8	202.0	313.6
Potassium Chloride	\$/ton	206.0	293.2	182.6	258.9
Phospate TSP	\$/ton	177.5	251.5	166.3	235.1

Table L-5-3-1 PRICE STRUCTURE SREDNA TUNJA

Wheat	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Bouras				
Tariff (20%)				
Value Add Tax (22%)				
Port Handling and charges				
Transport cost to Wholesalemarket				
Marketing Margin				
Wholesale Price				
Local Transport cost				
Farmgate price				

Barley	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Bouras				
Tariff (5%)				
Value Add Tax (22%)				
Port Handling and charges				
Transport cost to Wholesalemarket				
Marketing Margin				
Wholesale Price				
Local Transport cost				
Farmgate price				

Maize	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Bouras				
Tariff (5%)				
Value Add Tax (22%)				
Port Handling and charges				
Transport cost to Wholesalemarket				
Marketing Margin				
Wholesale Price				
Local Transport cost				
Farmgate price				

Port handling, storage charges is calculated as \$15 per ton.
 Market margin is calculated as 2 % of import price.
 Insurance cost varies depending on the Import price.
 Standard conversion factor is 0.91.

Table L-5-3-2 PRICE STRUCTURE SREDNA TUNJA

Sunflower	1996		2005			
	Financial	Economic	Financial	Economic		
Export price fob at Odessa					203	220
Ocean freight and Insurance					21.5	21.5
Import price cif at Bouras	224.5	224.5	241.5	241.5		
Tariff (10%)	2.245		2.415			
Value Add Tax (22%)	49		53			
Port Handling and charges	15	13.7	15	13.7		
Transport cost to Wholesalemarket	3	2.7	3	2.7		
Marketing Margin	4.49	4.1	4.83	4.4		
Wholesale Price	298.63	244.97	319.88	262.28		
Local Transport cost	4	3.6	4	3.6		
Farmgate price	302.63	248.61	323.88	265.92		

Sugarbeet	1996		2005			
	Financial	Economic	Financial	Economic		
Export price fob at US gulf ports					254	238
Ocean freight and Insurance					50	50
Import price cif at Bouras	304	304	288	288		
Tariff (5%)	15.2		14.4			
Value Add Tax (22%)	67		63			
Port Handling and charges	15	13.7	15	13.7		
Transport cost to Wholesalemarket	3	2.7	3	2.7		
Marketing Margin	6.08	5.5	5.76	5.2		
Wholesale Price	410.16	325.92	389.52	309.63		
Local Transport cost	4	3.6	4	3.6		
Farmgate sugar price	414.16	329.56	393.52	313.27		
Sugarbeet equivalent price (9% of sugarbeet produces sugar)	37.3	29.7	35.4	28.2		

Tobacco	1996		2005			
	Financial	Economic	Financial	Economic		
Export price fob at US gulf ports					2,293	1,947
Ocean freight and Insurance					50	50
Import price cif at Bouras	2,343	2,343	1,997	1,997		
Tariff (10%)	234.3		199.7			
Value Add Tax (22%)	515		439			
Port Handling and charges	15	13.7	15	13.7		
Transport cost to Wholesalemarket	3	2.7	3	2.7		
Marketing Margin	46.86	42.7	39.94	36.4		
Wholesale Price	3157.62	2402.03	2693.98	2049.74		
Local Transport cost	4	3.6	4	3.6		
Farmgate price	3161.62	2405.6746	2697.98	2053.3762		

Port handling, storage charges is calculated as \$15 per ton.

Market margin is calculated as 2 % of Import price.

Insurance cost varies depending on the import price.

Standard conversion factor is 0.91.

Table L -5-3-3 PRICE STRUCTURE SREDNA TUNJA

Alfalfa	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and Insurance				
Import price cif at Bouras	153	153	132	132
Tariff (5%)	7.65		6.6	
Value Add Tax (22%)	34		29	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	3	2.7	3	2.7
Marketing Margin	3.06	2.8	2.64	2.4
Wholesale Price	215.37	172.17	188.28	150.79
Local Transport cost	4	3.6	4	3.6
Farmgate price	219.37	175.81	192.28	154.43

Other Crops(Beans)	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at Rotteldam				
Ocean freight and Insurance				
Import price cif at Bouras	260	260	280	280
Tariff (40%)	104		112.08	
Value Add Tax (22%)	57		62	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	3	2.7	3	2.7
Marketing Margin	5.2	4.7	5.604	5.1
Wholesale Price	444.4	281.12	477.528	301.68
Local Transport cost	4	3.6	4	3.6
Farmgate price	448.40	284.76	481.53	305.32

Port handling, storage charges is calculated as \$15 per ton.

Market margin is calculated as 2 % of Import price.

Insurance cost varies depending on the Import price.

Standard conversion factor is 0.91.

Table L -5-3-4 PRICE STRUCTURE SREDNA TUNJA

Urea	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Bouras	234	234	176	176
Tariff (40%)	93.6		70.4	
Value Add Tax (22%)	51		39	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	3	2.7	3	2.7
Marketing Margin	4.68	4.3	3.52	3.2
Wholesale Price	401.76	254.64	306.64	195.59
Local Transport cost	4	3.6	4	3.6
Farmgate price	405.76	258.28	310.64	199.23

Potassium Chloride	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Bouras	180	180	157	157
Tariff (25%)	45		39.25	
Value Add Tax (22%)	40		35	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	3	2.7	3	2.7
Marketing Margin	3.6	3.3	3.14	2.9
Wholesale Price	286.2	199.66	251.93	176.24
Local Transport cost	4	3.6	4	3.6
Farmgate price	290.20	203.30	255.93	179.88

Phosphate TSP	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Bouras	152	152	141	141
Tariff (25%)	38		35.25	
Value Add Tax (22%)	33		31	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	3	2.7	3	2.7
Marketing Margin	3.04	2.8	2.82	2.6
Wholesale Price	244.48	171.15	228.09	159.95
Local Transport cost	4	3.6	4	3.6
Farmgate price	248.48	174.79076	232.09	163.59

Port handling, storage charges is calculated as \$15 per ton.

Market margin is calculated as 2 % of Import price.

Insurance cost varies depending on the Import price.

Standard conversion factor is 0.91.

Table L-5-3-5 PRICE STRUCTURE ROSITZA

Wheat	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Varna				
Tariff (20%)				
Value Add Tax (22%)				
Port Handling and charges				
Transport cost to Wholesalemarket				
Marketing Margin				
Wholesale Price				
Local Transport cost				
Farmgate price				

Barley	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Varna				
Tariff (5%)				
Value Add Tax (22%)				
Port Handling and charges				
Transport cost to Wholesalemarket				
Marketing Margin				
Wholesale Price				
Local Transport cost				
Farmgate price				

Maize	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Varna				
Tariff (5%)				
Value Add Tax (22%)				
Port Handling and charges				
Transport cost to Wholesalemarket				
Marketing Margin				
Wholesale Price				
Local Transport cost				
Farmgate price				

Port handling, storage charges is calculated as \$15 per ton.
 Market margin is calculated as 2 % of import price.
 Insurance cost varies depending on the import price.
 Standard Conversion Factor is 0.91.

Table L -5-3-6 PRICE STRUCTURE ROSITZA

Sunflower	1996		2005			
	Financial	Economic	Financial	Economic		
Export price fob at Odessa					203	220
Ocean freight and insurance					21.5	21.5
Import price cif at Varna	224.5	224.5	241.5	241.5		
Tariff (10%)	2.245		2.415			
Value Add Tax (22%)	49		53			
Port Handling and charges	15	13.7	15	13.7		
Transport cost to Wholesalemarket	6	5.5	6	5.5		
Marketing Margin	4.49	4.1	4.83	4.4		
Wholesale Price	301.625	247.7	322.875	265.0		
Local Transport cost	4	3.6	4	3.6		
Farmgate price	305.63	251.34	326.88	268.65		

Sugarbeet	1996		2005			
	Financial	Economic	Financial	Economic		
Export price fob at US gulf ports					254	238
Ocean freight and insurance					50	50
Import price cif at Varna	304	304	288	288		
Tariff (5%)	15.2		14.4			
Value Add Tax (22%)	67		63			
Port Handling and charges	15	13.7	15	13.7		
Transport cost to Wholesalemarket	6	5.5	6	5.5		
Marketing Margin	6.08	5.5	5.76	5.2		
Wholesale Price	413.16	328.6	392.52	312.4		
Local Transport cost	4	3.6	4	3.6		
Farmgate sugar price	417.16	332.29	396.52	316.00		
Sugarbeet equivalent price (9% of sugarbeet produces sugar)	37.5	29.9	35.7	28.4		

Tobacco	1996		2005			
	Financial	Economic	Financial	Economic		
Export price fob at US gulf ports					2,293	1,947
Ocean freight and insurance					50	50
Import price cif at Varna	2,343	2,343	1,997	1,997		
Tariff (10%)	234.3		199.7			
Value Add Tax (22%)	515		439			
Port Handling and charges	15	13.7	15	13.7		
Transport cost to Wholesalemarket	6	5.5	6	5.5		
Marketing Margin	46.86	42.7	39.94	36.4		
Wholesale Price	3160.62	2404.8	2696.98	2052.5		
Local Transport cost	4	3.6	4	3.6		
Farmgate price	3,164.6	2,408.4	2,701.0	2,056.1		

Port handling, storage charges is calculated as \$15 per ton.

Market margin is calculated as 2 % of import price.

Insurance cost varies depending on the import price.

Standard Conversion Factor is 0.91.

Table L-5-3-7 PRICE STRUCTURE ROSITZA

Alfalfa	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports			103	82
Ocean freight and insurance			50	50
Import price cif at Varna	153	153	132	132
Tariff (5%)	7.65		6.6	
Value Add Tax (22%)	34		29	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	6	5.5	6	5.5
Marketing Margin	3.06	2.8	2.64	2.4
Wholesale Price	218.37	174.9	191.28	153.5
Local Transport cost	4	3.6	4	3.6
Farmgate price	222.37	178.54	195.28	157.16

Other Crops(Beans)	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at Rotterdam			225	245
Ocean freight and insurance			35.0	35.2
Import price cif at Varna	260	260	280.2	280.2
Tariff (40%)	104		112.08	
Value Add Tax (22%)	57		62	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	6	5.5	6	5.5
Marketing Margin	5.2	4.7	5.604	5.1
Wholesale Price	447.4	283.8	480.528	304.4
Local Transport cost	4	3.6	4	3.6
Farmgate price	451.40	287.49	484.53	308.05

Port handling, storage charges is calculated as \$15 per ton.

Market margin is calculated as 2 % of Import price.

Insurance cost varies depending on the Import price.

Standard Conversion Factor is 0.91.

Table L-5-3-8 PRICE STRUCTURE ROSITZA

Urea	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Varna	234	234	176	176
Tariff (40%)	93.6		70.4	
Value Add Tax (22%)	51		39	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	6	5.5	6	5.5
Marketing Margin	4.68	4.3	3.52	3.2
Wholesale Price	404.76	257.4	309.64	198.3
Local Transport cost	4	3.6	4	3.6
Farmgate price	408.76	261.01	313.64	201.96

Potassium Chloride	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Varna	180	180	157	157
Tariff (25%)	45		39.25	
Value Add Tax (22%)	40		35	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	6	5.5	6	5.5
Marketing Margin	3.6	3.3	3.14	2.9
Wholesale Price	289.2	202.4	254.93	179.0
Local Transport cost	4	3.6	4	3.6
Farmgate price	293.20	206.03	258.93	182.61

Phosphate TSP	1996		2005	
	Financial	Economic	Financial	Economic
Export price fob at US gulf ports				
Ocean freight and insurance				
Import price cif at Varna	152	152	141	141
Tariff (25%)	38		35.25	
Value Add Tax (22%)	33		31	
Port Handling and charges	15	13.7	15	13.7
Transport cost to Wholesalemarket	6	5.5	6	5.5
Marketing Margin	3.04	2.8	2.82	2.6
Wholesale Price	247.48	173.9	231.09	162.7
Local Transport cost	4	3.6	4	3.6
Farmgate price	251.48	177.52	235.09	166.32

Port handling, storage charges is calculated as \$15 per ton.
 Market margin is calculated as 2 % of import price.
 Insurance cost varies depending on the import price.
 Standard Conversion Factor is 0.91.

Table L-6-1-1 PRODUCTION COST SREDNA TUNJA

Wheat

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	300	\$/metric ton	144.5	144.5	43.35	43.35	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	258	406	64.57	101.44	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.3	2.3	0	0	
	Pesticides	liter/ha	0.7	\$/liter	13.1	13.1	9.16	9.16	
	Insecticides	liter/ha	0	\$/liter	19.2	19.2	0	0	
	Fungicides	liter/ha	0	\$/liter	2.6	2.6	0	0	
Machinery				\$/ha			112.8	112.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			4.3	4.3	
Total Production Cost							234.18	271.05	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	300	\$/metric ton	144.5	144.5	43.4	43.4	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199	311	49.8	77.7	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.3	2.3	0	0	
	Pesticides	liter/ha	0.7	\$/liter	13.1	13.1	9.16	9.16	
	Insecticides	liter/ha	0	\$/liter	19.2	19.2	0	0	
	Fungicides	liter/ha	0	\$/liter	2.6	2.6	0	0	
Machinery				\$/ha			112.8	112.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			4.3	4.3	
Total Production Cost							219.4	247.3	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	300	\$/metric ton	144.5	144.5	43.35	43.35	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199	311	49.81	77.66	
	P	kg nutrient/ha	20	\$/metric ton	180	256	3.60	5.12	
	K	kg nutrient/ha	20	\$/metric ton	164	232	3.27	4.64	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.00	0.00	
Chemical	Herbicides	liter/ha	0.78	\$/liter	2.3	2.3	1.79	1.79	
	Pesticides	liter/ha	0.7	\$/liter	13.1	13.1	9.16	9.16	
	Insecticides	liter/ha	0	\$/liter	19.2	19.2	0	0	
	Fungicides	liter/ha	0.8	\$/liter	2.6	2.6	2.04	2.04	
Machinery				\$/ha			126.9	126.9	
Labor				\$/ha			-	-	
Water fee				\$/ha			5	5	
Others				\$/ha			4.8	4.8	
Total Production Cost							249.72	280.48	

Note: Price of fertilizer is based on the price calculated from the international price.
 Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SABI local price index and data from Farm Management Section.
 Farm labor cost is presented at the table of labor requirement.

Wheat

Economic price

Present	Future without	Future with
234.18386	219.41991	249.72

Table L-6-1-2 PRODUCTION COST SREDNA TUNJA

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	200	\$/metric ton	120	120	24	24	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	258	406	64.57	101.44	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.2	2.2	0	0	
	Pesticides	liter/ha	0.7	\$/liter	12.3	12.3	8.62	8.62	
	Insecticides	liter/ha	0	\$/liter	18.1	18.1	0	0	
	Fungicides	liter/ha	0	\$/liter	2.4	2.4	0	0	
Machinery				\$/ha			113.2	113.2	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			3.9	3.9	
Total Production Cost							214.29	251.16	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	200	\$/metric ton	120	120	24	24	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199	311	49.81	77.66	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.2	2.2	0	0	
	Pesticides	liter/ha	0.7	\$/liter	12.3	12.3	8.624	8.624	
	Insecticides	liter/ha	0	\$/liter	18.1	18.1	0	0	
	Fungicides	liter/ha	0	\$/liter	2.4	2.4	0	0	
Machinery				\$/ha			113.2	113.2	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			3.9	3.9	
Total Production Cost							199.53	227.38	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	200	\$/metric ton	120	120	24	24	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199	311	49.81	77.66	
	P	kg nutrient/ha	20	\$/metric ton	180	256	3.60	5.12	
	K	kg nutrient/ha	20	\$/metric ton	164	232	3.27	4.64	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0.78	\$/liter	2.2	2.2	1.68	1.68	
	Pesticides	liter/ha	0.7	\$/liter	12.3	12.3	8.62	8.62	
	Insecticides	liter/ha	0	\$/liter	18.1	18.1	0	0	
	Fungicides	liter/ha	0.8	\$/liter	2.4	2.4	1.92	1.92	
Machinery				\$/ha			126.9	126.9	
Labor				\$/ha					
Water fee				\$/ha			5	5	
Others				\$/ha			4.5	4.5	
Total Production Cost							229.31	260.05	

Note: Price of fertilizer is based on the price calculated from the international price. Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Barley

Economic price		
Present	Future without	Future with
214.29	199.53	229.31

Table L-6-1-3 PRODUCTION COST SREDNA TUNJA
Maize

Present		Physical Inputs		Unit Prices		Total Value					
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	362.7	362.7	9.07	9.07			
Fertilizer	N	kg nutrient/ha	300	\$/metric ton	258	406	77.49	121.73			
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0			
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0			
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0			
Chemical	Herbicides	\$/ha	0	\$/ha	2.51	2.51	0	0			
	Pesticides	\$/ha	0.9	\$/ha	14.32	14.32	12.89	12.89			
	Insecticides	\$/ha	0	\$/ha	21.02	21.02	0	0			
	Fungicides	\$/ha	0	\$/ha	2.79	2.79	0	0			
Machinery							108.8	108.8			
Labor							-	-			
Water fee							0.0	0.0			
Others							6.4	6.4			
Total Production Cost								214.64	258.89		

Future without		Physical Inputs		Unit Prices		Total Value					
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	362.7	362.7	9.07	9.07			
Fertilizer	N	kg nutrient/ha	300	\$/metric ton	199	311	59.77	93.19			
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0			
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0			
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0			
Chemical	Herbicides	\$/ha	0	\$/ha	2.51	2.51	0	0			
	Pesticides	\$/ha	0.9	\$/ha	14.32	14.32	12.89	12.89			
	Insecticides	\$/ha	0	\$/ha	21.02	21.02	0	0			
	Fungicides	\$/ha	0	\$/ha	2.79	2.79	0	0			
Machinery							108.8	108.8			
Labor							-	-			
Water fee							0.0	0.0			
Others							6.4	6.4			
Total Production Cost								196.93	230.35		

Future with		Physical Inputs		Unit Prices		Total Value					
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	30	\$/metric ton	362.7	362.7	10.9	10.9			
Fertilizer	N	kg nutrient/ha	300	\$/metric ton	199	311	59.8	93.2			
	P	kg nutrient/ha	115	\$/metric ton	180	256	20.7	29.4			
	K	kg nutrient/ha	100	\$/metric ton	164	232	16.4	23.2			
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0			
Chemical	Herbicides	\$/ha	0	\$/ha	2.51	2.51	0	0			
	Pesticides	\$/ha	0.9	\$/ha	14.32	14.32	12.89	12.89			
	Insecticides	\$/ha	0	\$/ha	21.02	21.02	0	0			
	Fungicides	\$/ha	0	\$/ha	2.79	2.79	0	0			
Machinery							123.3	123.3			
Labor							-	-			
Water fee							28.2	28.2			
Others							10.4	10.4			
Total Production Cost								282.5	331.5		

Note: Price of fertilizer is based on the price calculated from the international price. Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Maize

Economic price		
Present	Future without	Future with
214.64	196.93	282.48

Table L-6-1-4 PRODUCTION COST SREDNA TUNJA
Sunflower

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	50	\$/metric ton	158	158	7.9	7.9	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0	0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
Chemical	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
	Herbicides	liter/ha	0	\$/liter	2.5	2.5	0	0	
	Pesticides	liter/ha	0.7	\$/liter	14.3	14.3	10.03	10.03	
	Insecticides	liter/ha	0	\$/liter	21.0	21.0	0	0	
	Fungicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
Machinery				\$/ha			56.4	56.4	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			1.6	1.6	
Total Production Cost							75.93	75.93	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	50	\$/metric ton	158	158	7.91	7.91	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
Chemical	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
	Herbicides	liter/ha	0	\$/liter	2.5	2.5	0	0	
	Pesticides	liter/ha	0.7	\$/liter	14.3	14.3	10.03	10.03	
	Insecticides	liter/ha	0	\$/liter	21.0	21.0	0	0	
	Fungicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
Machinery				\$/ha			56.4	56.4	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			1.6	1.6	
Total Production Cost							75.93	75.93	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	50	\$/metric ton	158	158	7.91	7.91	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	40	\$/metric ton	180	256	7.20	10.24	
	K	kg nutrient/ha	35	\$/metric ton	164	232	5.73	8.12	
Chemical	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
	Herbicides	liter/ha	0	\$/liter	2.5	2.5	0	0	
	Pesticides	liter/ha	0.7	\$/liter	14.3	14.3	10.03	10.03	
	Insecticides	liter/ha	0	\$/liter	21.0	21.0	0	0	
	Fungicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
Machinery				\$/ha			56.4	56.4	
Labor				\$/ha					
Water fee				\$/ha			11.7	11.7	
Others				\$/ha			1.8	1.8	
Total Production Cost							100.75	106.19	

Note : Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Sunflower		Economic price		
		Present	Future without	Future with
		75.93	75.93	100.75

Table L-6-1-5 PRODUCTION COST SREDNA TUNJA
Sugar Beet

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	4	\$/metric ton	534	534	2.1	2.1	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	\$/ha	0	\$/ha	2.62	2.62	0.0	0.0	
	Pesticides	\$/ha	0.7	\$/ha	14.94	14.94	10.5	10.5	
	Insecticides	\$/ha	0	\$/ha	21.92	21.92	0.0	0.0	
	Fungicides	\$/ha	0	\$/ha	2.91	2.91	0	0	
Machinery				\$/ha			33.9	33.9	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			2.1	2.1	
Total Production Cost							48.6	48.6	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	4	\$/metric ton	534	534	2.13	2.13	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	\$/ha	0	\$/ha	2.62	2.62	0	0	
	Pesticides	\$/ha	0.7	\$/ha	14.94	14.94	10.46	10.46	
	Insecticides	\$/ha	0	\$/ha	21.92	21.92	0	0	
	Fungicides	\$/ha	0	\$/ha	2.91	2.91	0	0	
Machinery				\$/ha			33.9	33.9	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			2.1	2.1	
Total Production Cost							48.59	48.59	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	4	\$/metric ton	534	534	2.13	2.13	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	\$/ha	0	\$/ha	2.62	2.62	0	0	
	Pesticides	\$/ha	0.7	\$/ha	14.94	14.94	10.46	10.46	
	Insecticides	\$/ha	0	\$/ha	21.92	21.92	0	0	
	Fungicides	\$/ha	0	\$/ha	2.91	2.91	0	0	
Machinery				\$/ha			33.9	33.9	
Labor				\$/ha			-	-	
Water fee				\$/ha			30	30	
Others				\$/ha			2.3	2.3	
Total Production Cost							78.79	78.79	

Note: Price of fertilizer is based on the price calculated from the international price. Sugar Beet
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Economic price		
Present	Future without	Future with
48.59	48.59	78.79

Table -6-1-6 PRODUCTION COST SREDNA TUNJA
Tobacco

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0.0	0.0	
Fertilizer	N	kg nutrient/ha	1470	\$/metric ton	258	406	379.7	596.5	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	liter/ha	5.3	\$/liter	15.4	15.4	81.62	81.62	
	Insecticides	liter/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	liter/ha	0	\$/liter	3.0	3.0	0	0	
Machinery				\$/ha			72.8	72.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			32	32	
Others				\$/ha			26.3	26.3	
Total Production Cost							592.4	809.2	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	1470	\$/metric ton	199	311	292.86	456.64	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	liter/ha	5.3	\$/liter	15.4	15.4	81.62	81.62	
	Insecticides	liter/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	liter/ha	0	\$/liter	3.0	3.0	0	0	
Machinery				\$/ha			72.8	72.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			32	32	
Others				\$/ha			26.3	26.3	
Total Production Cost							505.58	669.36	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0.0	0.0	
Fertilizer	N	kg nutrient/ha	1470	\$/metric ton	199	311	292.9	456.6	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	liter/ha	5.3	\$/liter	15.4	15.4	81.62	81.62	
	Insecticides	liter/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	liter/ha	0	\$/liter	3.0	3.0	0	0	
Machinery				\$/ha			72.8	72.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			32	32	
Others				\$/ha			24.6	24.6	
Total Production Cost							503.9	667.7	

Notes: Price of fertilizer is based on the price calculated from the international price. Tobacco prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Economic price		
Present	Future without	Future with
592.40	505.58	503.88

Table L-6-1-7 PRODUCTION COST SREDNA TUNJA
Vegetables

Present		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	2	\$/metric ton	20,470	20,470	40.9	40.9		
Fertilizer	N	kg nutrient/ha	375	\$/metric ton	258	406	96.9	152.2		
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0		
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0		
Chemical	Herbicides	liter/ha	0	\$/liter	2.4	2.4	0	0		
	Pesticides	liter/ha	0.7	\$/liter	13.7	13.7	9.59	9.59		
	Insecticides	liter/ha	0	\$/liter	20.1	20.1	0	0		
	Fungicides	liter/ha	0	\$/liter	2.7	2.7	0	0		
Machinery							5.0	5.0		
Labor										
Water fee							33.3	33.3		
Others							23.2	23.2		
Total Production Cost							208.9	264.2		

Future without		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	2.0	\$/metric ton	20,470	20,470	40.9	40.9		
Fertilizer	N	kg nutrient/ha	375	\$/metric ton	199	311	74.7	116.5		
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0		
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0		
Chemical	Herbicides	liter/ha	0	\$/liter	2.4	2.4	0	0		
	Pesticides	liter/ha	0.7	\$/liter	13.7	13.7	9.59	9.59		
	Insecticides	liter/ha	0	\$/liter	20.1	20.1	0	0		
	Fungicides	liter/ha	0	\$/liter	2.7	2.7	0	0		
Machinery							5.0	5.0		
Labor										
Water fee							33.3	33.3		
Others							23.2	23.2		
Total Production Cost							186.7	228.5		

Future with		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	2.0	\$/metric ton	20,470	20,470	40.9	40.9		
Fertilizer	N	kg nutrient/ha	375	\$/metric ton	199	311	74.7	116.5		
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0		
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0		
Chemical	Herbicides	liter/ha	0	\$/liter	2.4	2.4	0	0		
	Pesticides	liter/ha	0.7	\$/liter	13.7	13.7	9.59	9.59		
	Insecticides	liter/ha	0	\$/liter	20.1	20.1	0	0		
	Fungicides	liter/ha	0	\$/liter	2.7	2.7	0	0		
Machinery							5.0	5.0		
Labor										
Water fee							33.3	33.3		
Others							25.3	25.3		
Total Production Cost							188.8	230.6		

Note: Price of fertilizer is based on the price calculated from the international price. Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Vegetables

Present	Economic price	
	Future without	Future with
208.9	186.7	188.8

Table L-6-1-8 PRODUCTION COST SREDNA TUNJA

Fruit

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0	0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.9	2.9	0	0	
	Pesticides	liter/ha	0.78	\$/liter	16.5	16.5	12.85	12.85	
	Insecticides	liter/ha	0	\$/liter	24.2	24.2	0	0	
	Fungicides	liter/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							48.5	48.5	
Labor							-	-	
Water fee							20.0	20.0	
Others							8.3	8.3	
Total Production Cost							89.65	89.65	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.9	2.9	0	0	
	Pesticides	liter/ha	0.78	\$/liter	16.5	16.5	12.85	12.85	
	Insecticides	liter/ha	0	\$/liter	24.2	24.2	0	0	
	Fungicides	liter/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							48.5	48.5	
Labor							-	-	
Water fee							20.0	20.0	
Others							8.3	8.3	
Total Production Cost							89.65	89.65	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	50	\$/metric ton	180	256	8.99	12.60	
	K	kg nutrient/ha	25	\$/metric ton	164	232	4.09	5.80	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.9	2.9	0	0	
	Pesticides	liter/ha	0.78	\$/liter	16.5	16.5	12.85	12.85	
	Insecticides	liter/ha	0	\$/liter	24.2	24.2	0	0	
	Fungicides	liter/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							48.5	48.5	
Labor							-	-	
Water fee							20.0	20.0	
Others							6.5	6.5	
Total Production Cost							100.9	106.5	

Note: Price of fertilizer is based on the price calculated from the international price. Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Fruit

Economic price

	Future without	Future with
Present	89.65	100.94

Table L-6-1-9 PRODUCTION COST SREDNA TUNJA

Grapes

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	0	\$/metric ton		0	0	0	0
Fertilizer	N	kg nutrient/ha	100	\$/metric ton		258	406	25.83	40.58
	P	kg nutrient/ha	0	\$/metric ton		203	290	0	0
	K	kg nutrient/ha	0	\$/metric ton		175	248	0	0
Chemical	Manure	kg nutrient/ha	0	\$/metric ton		0	0	0	0
	Herbicides	liter/ha	0	\$/liter		2.3	2.3	0	0
	Pesticides	liter/ha	0.78	\$/liter		13.2	13.2	10.33	10.33
	Insecticides	liter/ha	0	\$/liter		19.4	19.4	0	0
	Fungicides	liter/ha	0	\$/liter		2.6	2.6	0	0
Machinery				\$/ha			48.5	48.5	
Labor				\$/ha					
Water fee				\$/ha			14.2	14.2	
Others				\$/ha			13.4	13.4	
Total Production Cost								112.26	127.01

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	0	\$/metric ton		0	0	0	0
Fertilizer	N	kg nutrient/ha	100	\$/metric ton		199	311	19.92	31.06
	P	kg nutrient/ha	0	\$/metric ton		180	256	0	0
	K	kg nutrient/ha	0	\$/metric ton		164	232	0	0
Chemical	Manure	kg nutrient/ha	0	\$/metric ton		0	0	0	0
	Herbicides	liter/ha	0	\$/liter		2.3	2.3	0	0
	Pesticides	liter/ha	0.78	\$/liter		13.2	13.2	10.33	10.33
	Insecticides	liter/ha	0	\$/liter		19.4	19.4	0	0
	Fungicides	liter/ha	0	\$/liter		2.6	2.6	0	0
Machinery				\$/ha			48.5	48.5	
Labor				\$/ha					
Water fee				\$/ha			14.2	14.2	
Others				\$/ha			13.4	13.4	
Total Production Cost								106.35	117.49

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	0	\$/metric ton		0	0	0	0
Fertilizer	N	kg nutrient/ha	100	\$/metric ton		199	311	19.92	31.06
	P	kg nutrient/ha	35	\$/metric ton		180	256	6.30	8.96
	K	kg nutrient/ha	15	\$/metric ton		164	232	2.45	3.48
Chemical	Manure	kg nutrient/ha	0	\$/metric ton		0	0	0	0
	Herbicides	liter/ha	0	\$/liter		2.3	2.3	0	0
	Pesticides	liter/ha	0.78	\$/liter		13.2	13.2	10.33	10.33
	Insecticides	liter/ha	0	\$/liter		19.4	19.4	0	0
	Fungicides	liter/ha	0	\$/liter		2.6	2.6	0	0
Machinery				\$/ha			48.5	48.5	
Labor				\$/ha					
Water fee				\$/ha			14.2	14.2	
Others				\$/ha			11	11	
Total Production Cost								112.70	127.53

Note: Price of fertilizer is based on the price calculated from the international price. Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Grapes

Economic price	Future without		Future with	
	Present	Future without	Future with	Future with
	112.26	106.35	112.70	127.53

Table L-6-1-10 PRODUCTION COST SREDNA TUNJA
Alfalfa

Present		Physical Inputs		Unit Prices		Total Value			
						Price			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	2,000	2,000	50.0	50.0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	203	230	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	liter/ha	0	\$/liter	15.4	15.4	0	0	
	Insecticides	liter/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	liter/ha	0	\$/liter	3.0	3.0	0	0	
Machinery							8.1	8.1	
Labor							-	-	
Water fee							20.0	20.0	
Others							0.0	0.0	
Total Production Cost							78.1	78.1	

Future without		Physical Inputs		Unit Prices		Total Value			
						Price			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	2,000	2,000	50	50	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	liter/ha	0	\$/liter	15.4	15.4	0	0	
	Insecticides	liter/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	liter/ha	0	\$/liter	3.0	3.0	0	0	
Machinery							8.1	8.1	
Labor							-	-	
Water fee							20.0	20.0	
Others							0.0	0.0	
Total Production Cost							78.1	78.1	

Future with		Physical Inputs		Unit Prices		Total Value			
						Price			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	2,000	2,000	50.0	50.0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.7	2.7	0.0	0.0	
	Pesticides	liter/ha	0	\$/liter	15.4	15.4	0.0	0.0	
	Insecticides	liter/ha	0	\$/liter	22.6	22.6	0.0	0.0	
	Fungicides	liter/ha	0	\$/liter	3.0	3.0	0.0	0.0	
Machinery							8.1	8.1	
Labor							-	-	
Water fee							20.0	20.0	
Others							0.0	0.0	
Total Production Cost							78.1	78.1	

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Alfalfa

Present	Economic price	
	Future without	Future with
78.1	78.1	78.1

Table L-6-1-11 PRODUCTION COST SREDNA TUNJA
Other crops

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	80	\$/metric ton	320.4	320.4	25.6	25.6	
Fertilizer	N	kg nutrient/ha	75	\$/metric ton	258	406	19.4	30.4	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.4	2.4	0	0	
	Pesticides	liter/ha	0.35	\$/liter	13.7	13.7	4.80	4.80	
	Insecticides	liter/ha	0	\$/liter	20.1	20.1	0	0	
	Fungicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
Machinery				\$/ha			8.1	8.1	
Labor				\$/ha			-	-	
Water fee				\$/ha			20.0	20.0	
Others				\$/ha			0.0	0.0	
Total Production Cost							77.9	89.0	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	80	\$/metric ton	320.4	320.4	25.6	25.6	
Fertilizer	N	kg nutrient/ha	75	\$/metric ton	199	311	14.9	23.3	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.4	2.4	0	0	
	Pesticides	liter/ha	0.35	\$/liter	13.7	13.7	4.80	4.80	
	Insecticides	liter/ha	0	\$/liter	20.1	20.1	0	0	
	Fungicides	liter/ha	0	\$/liter	2.7	2.7	0	0	
Machinery				\$/ha			8.1	8.1	
Labor				\$/ha			-	-	
Water fee				\$/ha			20.0	20.0	
Others				\$/ha			0.0	0.0	
Total Production Cost							73.5	81.8	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	80	\$/metric ton	320.4	320.4	25.6	25.6	
Fertilizer	N	kg nutrient/ha	75	\$/metric ton	199	311	14.9	23.3	
	P	kg nutrient/ha	50	\$/metric ton	180	256	9.0	12.8	
	K	kg nutrient/ha	25	\$/metric ton	164	232	4.1	5.8	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.4	2.4	0.0	0.0	
	Pesticides	liter/ha	0.7	\$/liter	13.7	13.7	9.8	9.8	
	Insecticides	liter/ha	0	\$/liter	20.1	20.1	0.0	0.0	
	Fungicides	liter/ha	0	\$/liter	2.7	2.7	0.0	0.0	
Machinery				\$/ha			5.0	5.0	
Labor				\$/ha			-	-	
Water fee				\$/ha			14.2	14.2	
Others				\$/ha			3.0	3.0	
Total Production Cost							85.5	99.3	

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPL local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Others

Economic price

Present	Future without	Future with
77.9	73.5	85.5

Table L-6-2-1 PRODUCTION COST ROSITZA

Wheat

Present		Physical Inputs		Unit Prices	Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial
Seed	Planted	kg/ha	300	\$/metric ton	175	175	52.53	52.53
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	261	409	65.25	102.19
	P	kg nutrient/ha	0	\$/metric ton	206	293	0	0
	K	kg nutrient/ha	0	\$/metric ton	178	251	0	0
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0
Chemical	Herbicides	liter/ha	0	\$/liter	2.78	2.78	0	0
	Pesticides	liter/ha	0.7	\$/liter	15.86	15.86	11.10	11.10
	Insecticides	liter/ha	0	\$/liter	23.28	23.28	0	0
	Fungicides	liter/ha	0	\$/liter	3.09	3.09	0	0
Machinery				\$/ha			112.8	112.8
Labor				\$/ha			-	-
Water fee				\$/ha			0	0
Others				\$/ha			4.3	4.3
Total Production Cost							245.99	282.92

Future without		Physical Inputs		Unit Prices	Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial
Seed	Planted	kg/ha	300	\$/metric ton	175	175	52.5	52.5
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	202	314	50.5	78.4
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0
Chemical	Herbicides	liter/ha	0	\$/liter	2.78	2.78	0	0
	Pesticides	liter/ha	0.7	\$/liter	15.86	15.86	11.10	11.10
	Insecticides	liter/ha	0	\$/liter	23.28	23.28	0	0
	Fungicides	liter/ha	0	\$/liter	3.09	3.09	0	0
Machinery				\$/ha			112.8	112.8
Labor				\$/ha			-	-
Water fee				\$/ha			0	0
Others				\$/ha			4.3	4.3
Total Production Cost							231.22	259.14

Future with		Physical Inputs		Unit Prices	Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial
Seed	Planted	kg/ha	300	\$/metric ton	175	175	52.53	52.53
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	202	314	50.49	78.41
	P	kg nutrient/ha	20	\$/metric ton	183	259	3.65	5.18
	K	kg nutrient/ha	20	\$/metric ton	166	235	3.33	4.70
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.00	0.00
Chemical	Herbicides	liter/ha	0.78	\$/liter	2.78	2.78	2.17	2.17
	Pesticides	liter/ha	0.7	\$/liter	15.86	15.86	11.10	11.10
	Insecticides	liter/ha	0	\$/liter	23.28	23.28	0	0
	Fungicides	liter/ha	0.8	\$/liter	3.09	3.09	2.5	2.5
Machinery				\$/ha			126.9	126.9
Labor				\$/ha			-	-
Water fee				\$/ha			5	5
Others				\$/ha			4.8	4.8
Total Production Cost							262.44	293.26

Note: Price of fertilizer is based on the price calculated from the international price. Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section. Farm labor cost is presented at the table of labor requirement.

Wheat

Economic price	Future without		Future with	
	Present	Future without	Future with	
	245.99	231.22	262.44	

Table L-6-2-2 PRODUCTION COST ROSITZA
Barley

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	200	\$/metric ton	156	156	31.2	31.2	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	261	409	65.25	102.19	
	P	kg nutrient/ha	0	\$/metric ton	206	293	0	0	
	K	kg nutrient/ha	0	\$/metric ton	178	251	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.81	2.81	0	0	
	Pesticides	liter/ha	0.7	\$/liter	16.02	16.02	11.21	11.21	
	Insecticides	liter/ha	0	\$/liter	23.50	23.50	0	0	
	Fungicides	liter/ha	0	\$/liter	3.12	3.12	0	0	
Machinery				\$/ha			113.2	113.2	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			3.9	3.9	
Total Production Cost							224.76	261.70	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	200	\$/metric ton	156	156	31.2	31.2	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	202	314	50.49	78.41	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0	0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.81	2.81	0	0	
	Pesticides	liter/ha	0.7	\$/liter	16.02	16.02	11.21	11.21	
	Insecticides	liter/ha	0	\$/liter	23.50	23.50	0	0	
	Fungicides	liter/ha	0	\$/liter	3.12	3.12	0	0	
Machinery				\$/ha			113.2	113.2	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			3.9	3.9	
Total Production Cost							210.00	237.92	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	200	\$/metric ton	156	156	31.2	31.2	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	202	314	50.49	78.41	
	P	kg nutrient/ha	20	\$/metric ton	183	259	3.65	5.18	
	K	kg nutrient/ha	20	\$/metric ton	166	235	3.33	4.70	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0.78	\$/liter	2.81	2.81	2.19	2.19	
	Pesticides	liter/ha	0.7	\$/liter	16.02	16.02	11.21	11.21	
	Insecticides	liter/ha	0	\$/liter	23.50	23.50	0	0	
	Fungicides	liter/ha	0.8	\$/liter	3.12	3.12	2.50	2.50	
Machinery				\$/ha			126.90	126.90	
Labor				\$/ha			-	-	
Water fee				\$/ha			5.6	5.6	
Others				\$/ha			4.5	4.5	
Total Production Cost							241.57	272.39	

Barley

Economic price

Present	Future without	Future with
224.76	210.00	241.57

Table L-6-2-3 PRODUCTION COST ROSITZA
Maize

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	25	\$/metric ton	398		398	9.95	9.95
Fertilizer	N	kg nutrient/ha	300	\$/metric ton	261		409	78.30	122.63
	P	kg nutrient/ha	0	\$/metric ton	206		293	0	0
	K	kg nutrient/ha	0	\$/metric ton	178		251	0	0
	Manure	kg nutrient/ha	0	\$/metric ton	0		0	0	0
Chemical	Herbicides	liter/ha	0	\$/liter	2.8		2.8	0	0
	Pesticides	liter/ha	0.9	\$/liter	15.7		15.7	14.14	14.14
	Insecticides	liter/ha	0	\$/liter	23.1		23.1	0	0
	Fungicides	liter/ha	0	\$/liter	3.1		3.1	0	0
Machinery				\$/ha			108.8	108.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			0.0	0.0	
Others				\$/ha			6.4	6.4	
Total Production Cost								217.59	261.91

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	25	\$/metric ton	398		398	9.95	9.95
Fertilizer	N	kg nutrient/ha	300	\$/metric ton	202		314	60.59	94.03
	P	kg nutrient/ha	0	\$/metric ton	183		259	0	0
	K	kg nutrient/ha	0	\$/metric ton	166		235	0	0
	Manure	kg nutrient/ha	0	\$/metric ton	0		0	0	0
Chemical	Herbicides	liter/ha	0	\$/liter	2.8		2.8	0	0
	Pesticides	liter/ha	0.9	\$/liter	15.7		15.7	14.14	14.14
	Insecticides	liter/ha	0	\$/liter	23.1		23.1	0	0
	Fungicides	liter/ha	0	\$/liter	3.1		3.1	0	0
Machinery				\$/ha			108.8	108.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			0.0	0.0	
Others				\$/ha			6.4	6.4	
Total Production Cost								199.87	233.97

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	25	\$/metric ton	398		398	9.9	9.9
Fertilizer	N	kg nutrient/ha	300	\$/metric ton	202		314	60.6	94.1
	P	kg nutrient/ha	115	\$/metric ton	183		259	21.0	29.8
	K	kg nutrient/ha	100	\$/metric ton	166		235	18.6	23.5
	Manure	kg nutrient/ha	0	\$/metric ton	0		0	0.0	0.0
Chemical	Herbicides	liter/ha	0	\$/liter	2.8		2.8	0	0
	Pesticides	liter/ha	0.9	\$/liter	15.7		15.7	14.14	14.14
	Insecticides	liter/ha	0	\$/liter	23.1		23.1	0	0
	Fungicides	liter/ha	0	\$/liter	3.1		3.1	0	0
Machinery				\$/ha			123.3	123.3	
Labor				\$/ha			-	-	
Water fee				\$/ha			32.2	32.2	
Others				\$/ha			10.4	10.4	
Total Production Cost								288.2	337.4

Maize	Economic price		
	Present	Future without	Future with
	217.59	199.87	288.20

Table L-6-2-4 PRODUCTION COST ROSITZA
Sunflower

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	50	\$/metric ton	170	170	8.5	8.5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	261	409	0	0	
	P	kg nutrient/ha	0	\$/metric ton	206	293	0	0	
	K	kg nutrient/ha	0	\$/metric ton	178	251	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	\$/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	\$/ha	0.7	\$/liter	15.4	15.4	10.78	10.78	
	Insecticides	\$/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	\$/ha	0	\$/liter	3.0	3.0	0	0	
Machinery				\$/ha			56.4	56.4	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			1.6	1.6	
Total Production Cost							77.28	77.28	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	50	\$/metric ton	170	170	8.5	8.5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0	0	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0	0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	\$/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	\$/ha	0.7	\$/liter	15.4	15.4	10.78	10.78	
	Insecticides	\$/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	\$/ha	0	\$/liter	3.0	3.0	0	0	
Machinery				\$/ha			56.4	56.4	
Labor				\$/ha			-	-	
Water fee				\$/ha			0	0	
Others				\$/ha			1.6	1.6	
Total Production Cost							77.28	77.28	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	50	\$/metric ton	170	170	8.5	8.5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0	0	
	P	kg nutrient/ha	40	\$/metric ton	183	259	7.30	10.36	
	K	kg nutrient/ha	35	\$/metric ton	166	235	5.82	8.23	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	\$/ha	0	\$/liter	2.7	2.7	0	0	
	Pesticides	\$/ha	0.7	\$/liter	15.4	15.4	10.78	10.78	
	Insecticides	\$/ha	0	\$/liter	22.6	22.6	0	0	
	Fungicides	\$/ha	0	\$/liter	3.0	3.0	0	0	
Machinery				\$/ha			56.4	56.4	
Labor				\$/ha			-	-	
Water fee				\$/ha			13	13	
Others				\$/ha			1.8	1.8	
Total Production Cost							103.63	109.07	

Sunflower

Economic price		
Present	Future without	Future with
77.28	77.28	103.63

Table L-6-2-5 PRODUCTION COST ROSITZA
Sugar Beet

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	4	\$/metric ton	567	567	2.3	2.3	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	261	409	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	206	293	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	178	251	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.8	2.8	0.0	0.0	
	Pesticides	liter/ha	0.7	\$/liter	15.9	15.9	11.1	11.1	
	Insecticides	liter/ha	0	\$/liter	23.3	23.3	0.0	0.0	
	Fungicides	liter/ha	0	\$/liter	3.1	3.1	0	0	
Machinery							33.9	33.9	
Labor							-	-	
Water fee							0	0	
Others							2.1	2.1	
Total Production Cost							49.4	49.4	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	4	\$/metric ton	567	567	2.27	2.27	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0	0	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0	0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
	Pesticides	liter/ha	0.7	\$/liter	15.9	15.9	11.10	11.10	
	Insecticides	liter/ha	0	\$/liter	23.3	23.3	0	0	
	Fungicides	liter/ha	0	\$/liter	3.1	3.1	0	0	
Machinery							33.9	33.9	
Labor							-	-	
Water fee							0	0	
Others							2.1	2.1	
Total Production Cost							49.37	49.37	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	4	\$/metric ton	567	567	2.3	2.3	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.8	2.8	0.0	0.0	
	Pesticides	liter/ha	0.7	\$/liter	15.9	15.9	11.1	11.1	
	Insecticides	liter/ha	0	\$/liter	23.3	23.3	0.0	0.0	
	Fungicides	liter/ha	0	\$/liter	3.1	3.1	0	0	
Machinery							33.9	33.9	
Labor							-	-	
Water fee							33.7	33.7	
Others							2.3	2.3	
Total Production Cost							83.27	83.27	

Sugar Beet

Economic price		
Present	Future without	Future with
49.37	49.37	83.27

Table L-6-2-6 PRODUCTION COST ROSITZA
Tobacco

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0.0	0.0	
Fertilizer	N	kg nutrient/ha	1470	\$/metric ton	261	409	383.7	600.9	
	P	kg nutrient/ha	0	\$/metric ton	206	293	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	178	251	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	\$/ha	0	\$/ha	2.7	2.7	0	0	
	Pesticides	\$/ha	5.3	\$/ha	15.4	15.4	81.62	81.62	
	Insecticides	\$/ha	0	\$/ha	22.6	22.6	0	0	
	Fungicides	\$/ha	0	\$/ha	3.0	3.0	0	0	
Machinery				\$/ha			72.8	72.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			33.7	33.7	
Others				\$/ha			26.3	26.3	
Total Production Cost							588.1	815.3	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	1470	\$/metric ton	202	314	296.88	461.05	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0	0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	\$/ha	0	\$/ha	2.7	2.7	0	0	
	Pesticides	\$/ha	5.3	\$/ha	15.4	15.4	81.62	81.62	
	Insecticides	\$/ha	0	\$/ha	22.6	22.6	0	0	
	Fungicides	\$/ha	0	\$/ha	3.0	3.0	0	0	
Machinery				\$/ha			72.8	72.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			33.7	33.7	
Others				\$/ha			26.3	26.3	
Total Production Cost							511.30	675.47	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0.0	0.0	
Fertilizer	N	kg nutrient/ha	1470	\$/metric ton	202	314	296.9	461.1	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	\$/ha	0	\$/ha	2.7	2.7	0	0	
	Pesticides	\$/ha	5.3	\$/ha	15.4	15.4	81.62	81.62	
	Insecticides	\$/ha	0	\$/ha	22.6	22.6	0	0	
	Fungicides	\$/ha	0	\$/ha	3.0	3.0	0	0	
Machinery				\$/ha			72.8	72.8	
Labor				\$/ha			-	-	
Water fee				\$/ha			33.7	33.7	
Others				\$/ha			24.6	24.6	
Total Production Cost							509.6	673.8	

Tobacco

Economic price		
Present	Future without	Future with
598.11	511.30	509.60

Table L-6-2-7 PRODUCTION COST ROSITZA
Vegetables

Present		Physical Inputs		Unit Prices		Total Value					
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	2	\$/metric ton	22,310	22,310	44.6	44.6			
Fertilizer	N	kg nutrient/ha	375	\$/metric ton	261	409	97.9	153.3			
	P	kg nutrient/ha	0	\$/metric ton	206	293	0.0	0.0			
	K	kg nutrient/ha	0	\$/metric ton	178	251	0.0	0.0			
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0			
Chemical	Herbicides	liter/ha	0	\$/liter	2.6	2.6	0	0			
	Pesticides	liter/ha	0.7	\$/liter	14.9	14.9	10.46	10.46			
	Insecticides	liter/ha	0	\$/liter	21.9	21.9	0	0			
	Fungicides	liter/ha	0	\$/liter	2.9	2.9	0	0			
Machinery							5.0	5.0			
Labor							-	-			
Water fee							37.5	37.5			
Others							23.2	23.2			
Total Production Cost								218.7	274.1		

Future without		Physical Inputs		Unit Prices		Total Value					
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	2.0	\$/metric ton	22,310	22,310	44.6	44.6			
Fertilizer	N	kg nutrient/ha	375	\$/metric ton	202	314	75.7	117.6			
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0			
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0			
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0			
Chemical	Herbicides	liter/ha	0	\$/liter	2.6	2.6	0	0			
	Pesticides	liter/ha	0.7	\$/liter	14.9	14.9	10.46	10.46			
	Insecticides	liter/ha	0	\$/liter	21.9	21.9	0	0			
	Fungicides	liter/ha	0	\$/liter	2.9	2.9	0	0			
Machinery							5.0	5.0			
Labor							-	-			
Water fee							37.5	37.5			
Others							23.2	23.2			
Total Production Cost								196.5	238.4		

Future with		Physical Inputs		Unit Prices		Total Value					
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	2.0	\$/metric ton	22,310	22,310	44.6	44.6			
Fertilizer	N	kg nutrient/ha	375	\$/metric ton	202	314	75.7	117.6			
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0			
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0			
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0			
Chemical	Herbicides	liter/ha	0	\$/liter	2.6	2.6	0	0			
	Pesticides	liter/ha	0.7	\$/liter	14.9	14.9	10.46	10.46			
	Insecticides	liter/ha	0	\$/liter	21.9	21.9	0	0			
	Fungicides	liter/ha	0	\$/liter	2.9	2.9	0	0			
Machinery							5.0	5.0			
Labor							-	-			
Water fee							37.5	37.5			
Others							25.3	25.3			
Total Production Cost								198.6	240.5		

Vegetables

Economic price		
Present	Future without	Future with
218.7	196.5	198.6

Table L-6-2-8 PRODUCTION COST ROSITZA

Fruit

Present		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic		Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0	0
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	261	409	0	0	0	0
	P	kg nutrient/ha	0	\$/metric ton	206	293	0	0	0	0
	K	kg nutrient/ha	0	\$/metric ton	178	251	0	0	0	0
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	0	0
Chemical	Herbicides	liter/ha	0	\$/liter	2.0	2.0	0	0	0	0
	Pesticides	liter/ha	0.78	\$/liter	11.6	11.6	9.01	9.01	0	0
	Insecticides	liter/ha	0	\$/liter	17.0	17.0	0	0	0	0
	Fungicides	liter/ha	0	\$/liter	2.3	2.3	0	0	0	0
Machinery				\$/ha			48.5	48.5		
Labor				\$/ha						
Water fee				\$/ha			22.5	22.5		
Others				\$/ha			8.3	8.3		
Total Production Cost							88.31	88.31		

Future without		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic		Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0	0
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0	0	0	0
	P	kg nutrient/ha	0	\$/metric ton	183	259	0	0	0	0
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0	0	0
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	0	0
Chemical	Herbicides	liter/ha	0	\$/liter	2.0	2.0	0	0	0	0
	Pesticides	liter/ha	0.78	\$/liter	11.6	11.6	9.01	9.01	0	0
	Insecticides	liter/ha	0	\$/liter	17.0	17.0	0	0	0	0
	Fungicides	liter/ha	0	\$/liter	2.3	2.3	0	0	0	0
Machinery				\$/ha			48.5	48.5		
Labor				\$/ha						
Water fee				\$/ha			22.5	22.5		
Others				\$/ha			8.3	8.3		
Total Production Cost							88.31	88.31		

Future with		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic		Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0	0
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0	0	0	0
	P	kg nutrient/ha	50	\$/metric ton	183	259	9.13	12.95	0	0
	K	kg nutrient/ha	25	\$/metric ton	166	235	4.16	5.88	0	0
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	0	0
Chemical	Herbicides	liter/ha	0	\$/liter	2.0	2.0	0	0	0	0
	Pesticides	liter/ha	0.78	\$/liter	11.6	11.6	9.01	9.01	0	0
	Insecticides	liter/ha	0	\$/liter	17.0	17.0	0	0	0	0
	Fungicides	liter/ha	0	\$/liter	2.3	2.3	0	0	0	0
Machinery				\$/ha			48.5	48.5		
Labor				\$/ha						
Water fee				\$/ha			22.5	22.5		
Others				\$/ha			6.5	6.5		
Total Production Cost							99.8	105.3		

Fruit

Economic price

Present	Future without	Future with
88.31	88.31	99.80

Table L-6-2-9 PRODUCTION COST ROSITZA
Grapes

Present		Physical Inputs		Unit Prices		Price		Total Value	
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	100	\$/metric ton	261	409	26.10	40.88	
	P	kg nutrient/ha	0	\$/metric ton	206	293	0	0	
	K	kg nutrient/ha	0	\$/metric ton	178	251	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
	Pesticides	liter/ha	0.78	\$/liter	16.0	16.0	12.49	12.49	
	Insecticides	liter/ha	0	\$/liter	23.5	23.5	0	0	
	Fungicides	liter/ha	0	\$/liter	3.1	3.1	0	0	
Machinery							48.5	48.5	
Labor							-	-	
Water fee							15	15	
Others							13.4	13.4	
Total Production Cost							115.5	130.3	

Future without		Physical Inputs		Unit Prices		Price		Total Value	
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	100	\$/metric ton	202	314	20.20	31.36	
	P	kg nutrient/ha	35	\$/metric ton	183	259	0	0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
	Pesticides	liter/ha	0.78	\$/liter	16.0	16.0	12.49	12.49	
	Insecticides	liter/ha	0	\$/liter	23.5	23.5	0	0	
	Fungicides	liter/ha	0	\$/liter	3.1	3.1	0	0	
Machinery							48.5	48.5	
Labor							-	-	
Water fee							15	15	
Others							13.4	13.4	
Total Production Cost							109.59	120.76	

Future with		Physical Inputs		Unit Prices		Price		Total Value	
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	
Fertilizer	N	kg nutrient/ha	100	\$/metric ton	202	314	20.20	31.36	
	P	kg nutrient/ha	35	\$/metric ton	183	259	6.39	9.06	
	K	kg nutrient/ha	15	\$/metric ton	166	235	2.49	3.53	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.8	2.8	0	0	
	Pesticides	liter/ha	0.78	\$/liter	16.0	16.0	12.49	12.49	
	Insecticides	liter/ha	0	\$/liter	23.5	23.5	0	0	
	Fungicides	liter/ha	0	\$/liter	3.1	3.1	0	0	
Machinery							48.5	48.5	
Labor							-	-	
Water fee							15	15	
Others							11	11	
Total Production Cost							116.07	130.95	

Grapes

Economic price		
Present	Future without	Future with
115.49	109.59	116.07

Table L-6-2-10 PRODUCTION COST ROSITZA
Alfalfa

Present		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	2,000	2,000	50.0	50.0		
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	261	409	0.0	0.0		
	P	kg nutrient/ha	0	\$/metric ton	206	293	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	178	251	0.0	0.0		
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0		
Chemical	Herbicides	\$/ha	0	\$/ha	2.7	2.7	0	0		
	Pesticides	\$/ha	0	\$/ha	15.4	15.4	0	0		
	Insecticides	\$/ha	0	\$/ha	22.6	22.6	0	0		
	Fungicides	\$/ha	0	\$/ha	3.0	3.0	0	0		
Machinery				\$/ha			8.1	8.1		
Labor				\$/ha						
Water fee				\$/ha			22.5	22.5		
Others				\$/ha			0.0	0.0		
Total Production Cost							80.6	80.6		

Future without		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	2,000	2,000	50	50		
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0	0		
	P	kg nutrient/ha	0	\$/metric ton	183	259	0	0		
	K	kg nutrient/ha	0	\$/metric ton	166	235	0	0		
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0	0		
Chemical	Herbicides	\$/ha	0	\$/ha	2.7	2.7	0	0		
	Pesticides	\$/ha	0	\$/ha	15.4	15.4	0	0		
	Insecticides	\$/ha	0	\$/ha	22.6	22.6	0	0		
	Fungicides	\$/ha	0	\$/ha	3.0	3.0	0	0		
Machinery				\$/ha			8.1	8.1		
Labor				\$/ha						
Water fee				\$/ha			22.5	22.5		
Others				\$/ha			0.0	0.0		
Total Production Cost							80.6	80.6		

Future with		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	2,000	2,000	50.0	50.0		
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	202	314	0.0	0.0		
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0		
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0		
Chemical	Herbicides	\$/ha	0	\$/ha	2.7	2.7	0.0	0.0		
	Pesticides	\$/ha	0	\$/ha	15.4	15.4	0.0	0.0		
	Insecticides	\$/ha	0	\$/ha	22.6	22.6	0.0	0.0		
	Fungicides	\$/ha	0	\$/ha	3.0	3.0	0.0	0.0		
Machinery				\$/ha			8.1	8.1		
Labor				\$/ha						
Water fee				\$/ha			22.5	22.5		
Others				\$/ha			0.0	0.0		
Total Production Cost							80.6	80.6		

Alfalfa

Economic price		
Present	Future without	Future with
80.6	80.6	80.6

Table L-6-2-11 PRODUCTION COST ROSITZA

Other crops

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	80	\$/metric ton	349	349	27.9	27.9	
Fertilizer	N	kg nutrient/ha	75	\$/metric ton	261	409	19.6	30.7	
	P	kg nutrient/ha	0	\$/metric ton	206	293	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	178	251	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.6	2.6	0	0	
	Pesticides	liter/ha	0.35	\$/liter	14.9	14.9	5.23	5.23	
	Insecticides	liter/ha	0	\$/liter	21.9	21.9	0	0	
	Fungicides	liter/ha	0	\$/liter	2.9	2.9	0	0	
Machinery				\$/ha			5.0	5.0	
Labor				\$/ha			-	-	
Water fee				\$/ha			15.0	15.0	
Others				\$/ha			4.0	4.0	
Total Production Cost							76.7	97.6	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	80	\$/metric ton	349	349	27.9	27.9	
Fertilizer	N	kg nutrient/ha	75	\$/metric ton	202	314	15.1	23.5	
	P	kg nutrient/ha	0	\$/metric ton	183	259	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	166	235	0.0	0.0	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.6	2.6	0	0	
	Pesticides	liter/ha	0.35	\$/liter	14.9	14.9	5.23	5.23	
	Insecticides	liter/ha	0	\$/liter	21.9	21.9	0	0	
	Fungicides	liter/ha	0	\$/liter	2.9	2.9	0	0	
Machinery				\$/ha			5.0	5.0	
Labor				\$/ha			-	-	
Water fee				\$/ha			15.0	15.0	
Others				\$/ha			4.0	4.0	
Total Production Cost							72.3	80.7	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	80	\$/metric ton	349	349	27.9	27.9	
Fertilizer	N	kg nutrient/ha	75	\$/metric ton	202	314	15.1	23.5	
	P	kg nutrient/ha	50	\$/metric ton	183	259	9.1	12.9	
	K	kg nutrient/ha	25	\$/metric ton	166	235	4.2	5.9	
	Manure	kg nutrient/ha	0	\$/metric ton	0	0	0.0	0.0	
Chemical	Herbicides	liter/ha	0	\$/liter	2.6	2.6	0.0	0.0	
	Pesticides	liter/ha	0.7	\$/liter	14.9	14.9	10.5	10.5	
	Insecticides	liter/ha	0	\$/liter	21.9	21.9	0.0	0.0	
	Fungicides	liter/ha	0	\$/liter	2.9	2.9	0.0	0.0	
Machinery				\$/ha			5.0	5.0	
Labor				\$/ha			-	-	
Water fee				\$/ha			15.0	15.0	
Others				\$/ha			5.0	5.0	
Total Production Cost							91.8	105.7	

Others	Economic price		
	Present	Future without	Future with
	76.7	72.3	91.8

TABLE L-7-1 SREDNA TUNJA
LABOR REQUIREMENT

		(000' mandays/ha)													
Total		90,138	48	58	274	620	236	166	601	237	153	163	120	36	2,713
Present		90,138	48	58	274	620	236	166	601	237	153	163	120	36	2,713
Future without		89,188	60	69	515	831	373	189	551	215	602	157	126	48	3,736
Future with															

		(million mandays)												
Total		0.05	0.06	0.27	0.62	0.24	0.17	0.60	0.24	0.15	0.16	0.12	0.04	2.71
Present		0.05	0.06	0.27	0.62	0.24	0.17	0.60	0.24	0.15	0.16	0.12	0.04	2.71
Future without		0.06	0.07	0.51	0.83	0.37	0.19	0.55	0.22	0.60	0.16	0.13	0.05	3.74
Future with														

		(US\$/day)												
Market wage rate		1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Future without		1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Future with														

		(US\$/day)												
Economic cost of Daily Farm Labor		1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Future without		1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Future with														

		(million US\$)												
Economic cost of Farm Labor		0.053	0.064	0.304	0.688	0.262	0.185	0.667	0.263	0.170	0.181	0.134	0.040	3.012
Future without		0.067	0.077	0.571	0.922	0.414	0.210	0.612	0.239	0.668	0.174	0.140	0.053	4.146
Future with														

		(000'US\$)												
Incremental cost of Farm Labor		0.01	0.01	0.27	0.23	0.15	0.02	-0.06	-0.02	0.50	-0.01	0.01	0.01	total
W/-W/O														1.13

Conversion factor for labor 1
NOTE : Conversion Factor for labor was assumed to be 1.00.
Wage is 1.11 dollar per day.

TABLE L-7-2 ROSITZA
LABOR REQUIREMENT

Total	(000 mandays/ha)													
Present	46,823	48	84	358	471	258	118	309	144	359	71	62	36	2,318
Future without	46,823	48	84	358	471	258	118	309	144	359	71	62	36	2,318
Future with	46,823	60	84	370	493	282	126	336	153	387	80	70	48	2,490

Total	(million mandays)													
Present		0.05	0.08	0.36	0.47	0.26	0.12	0.31	0.14	0.36	0.07	0.06	0.04	2.32
Future without		0.05	0.08	0.36	0.47	0.26	0.12	0.31	0.14	0.36	0.07	0.06	0.04	2.32
Future with		0.06	0.08	0.37	0.49	0.28	0.13	0.34	0.15	0.39	0.08	0.07	0.05	2.49

Market wage rate	(US\$/day)													
Future without	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Future with	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11

Economic cost of Daily Farm Labor	(US\$/day)													
Future without	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Future with	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11

Economic cost of Farm Labor	(million US\$)												
Future without	0.053	0.093	0.397	0.522	0.286	0.131	0.343	0.160	0.398	0.079	0.069	0.040	2.573
Future with	0.067	0.093	0.411	0.547	0.313	0.140	0.372	0.170	0.430	0.089	0.078	0.053	2.763

Incremental cost of Farm Labor	(million US\$)													
W/-W/O	0.01	0.00	0.01	0.02	0.03	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	total
														(000'US\$)

Conversion factor for labor 1
 NOTE : Conversion factor for labor was assumed to be 1.00.
 Wage is 1.11 dollar/ day.

Sredna Tunja Binkos Marash

Table L-8-1 Net Value of Production at full development

Future without

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	11,014	3,100	174.3	540.4	219.4	320.9	3,535
Barley	5,971	3,000	186.5	559.6	199.5	360.1	2,150
Maize	3,317	3,850	148.9	573.1	196.9	376.2	1,248
Sunflower	4,976	1,000	265.9	265.9	75.9	190.0	945
Sugarbeet	42	8,000	28.2	225.6	48.6	177.0	7
Tabacco	0	1,250	2053.4	2,566.7	505.6	2,061.1	0
Vegetables	1,667	7,750	186.0	1,441.5	186.7	1,254.8	2,091
Fruit	1,360	3,500	96.0	336.0	89.7	246.3	335
Grapes	1,659	3,560	176.0	626.6	106.4	520.2	863
Alfalfa	962	3,000	154.4	463.3	78.1	385.2	371
Other crops	531	2,910	305.3	888.5	73.5	815.0	433
Unplanted	1,675	-	-	-	-	-	-
Total	33,174						11,978

Future with

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	10,931	3,400	174.3	592.7	249.7	342.9	3,749
Barley	5,639	3,150	186.5	587.6	229.3	358.3	2,020
Maize	4,313	4,250	148.9	632.6	282.5	350.2	1,510
Sunflower	4,313	1,500	265.9	398.9	100.8	298.1	1,286
Sugarbeet	332	10,000	28.2	281.9	78.8	203.1	67
Tabacco	0	1,600	2053.4	3,285.4	503.9	2,781.5	0
Vegetables	1,327	14,080	186.0	2,618.9	188.8	2,430.0	3,224
Fruit	664	6,250	96.0	600.0	100.9	499.1	331
Grapes	995	6,500	176.0	1,144.0	112.7	1,031.3	1,026
Alfalfa	995	3,900	154.4	602.3	78.1	524.2	522
Other crops	1,659	3,750	305.3	1,145.0	85.5	1,059.5	1,758
Unplanted	2,007	-	-	-	-	-	-
Total	33,174						15,493

	(000'US\$)	
	without	with
Total net value of production	11,978	15,493
less: imputed labor cost	1,278	1,715
Total net value of production	10,700	13,779
Net incremental value of production at full development		3,079

Sredna Tunja Nova Zagora

Table L-8-2 Net Value of Production at full development

Future without

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	7,437	3,100	174.3	540.4	219.4	320.9	2,387
Barley	4,032	3,000	186.5	559.6	199.5	360.1	1,452
Maize	2,240	3,850	148.9	573.1	196.9	376.2	843
Sunflower	3,360	1,000	265.9	265.9	75.9	190.0	638
Sugarbeet	28	8,000	28.2	225.6	48.6	177.0	5
Tabacco	0	1,250	2053.4	2,566.7	505.6	2,061.1	0
Vegetables	1,125	7,750	186.0	1,441.5	186.7	1,254.8	1,412
Fruit	918	3,500	96.0	336.0	89.7	246.3	226
Grapes	1,120	3,560	176.0	626.6	106.4	520.2	593
Alfalfa	650	3,000	154.4	463.3	78.1	385.2	250
Other crops	358	2,910	305.3	888.5	73.5	815.0	292
Unplanted	1,131	-	-	-	-	-	-
Total	22,400	-	-	-	-	-	8,088

Future with

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	7,381	3,400	174.3	592.7	249.7	342.9	2,531
Barley	3,808	3,150	186.5	587.6	229.3	358.3	1,364
Maize	2,912	4,250	148.9	632.6	282.5	350.2	1,020
Sunflower	2,912	1,500	265.9	398.9	100.8	298.1	868
Sugarbeet	224	10,000	28.2	281.9	78.8	203.1	45
Tabacco	0	1,600	2053.4	3,285.4	503.9	2,781.5	0
Vegetables	896	14,080	186.0	2,618.9	188.8	2,430.0	2,177
Fruit	448	6,250	96.0	600.0	100.9	499.1	224
Grapes	672	6,500	176.0	1,144.0	112.7	1,031.3	693
Alfalfa	672	3,900	154.4	602.3	78.1	524.2	352
Other crops	1,120	3,750	305.3	1,145.0	85.5	1,059.5	1,187
Unplanted	1,355	-	-	-	-	-	-
Total	22,400	-	-	-	-	-	10,462

	(000'US\$)	
	without	with
Total net value of production	8,088	10,462
less: imputed labor cost	975	1,290
Total net value of production	7,112	9,171
Net incremental value of production at full development		2,059

Sredna Tunja

Nova Zagora M3

Table L-8-3 Net Value of Production at full development

Future without

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	4,382	3,100	174.3	540.4	219.4	320.9	1,407
Barley	2,376	3,000	186.5	559.6	199.5	360.1	856
Maize	1,320	3,850	148.9	573.1	196.9	376.2	497
Sunflower	1,980	1,000	265.9	265.9	75.9	190.0	376
Sugarbeet	17	8,000	28.2	225.6	48.6	177.0	3
Tabacco	0	1,250	2053.4	2,566.7	505.6	2,061.1	0
Vegetables	663	7,750	186.0	1,441.5	186.7	1,254.8	832
Fruit	541	3,500	96.0	336.0	89.7	246.3	133
Grapes	660	3,560	176.0	620.6	106.4	520.2	343
Alfalfa	383	3,000	154.4	463.3	78.1	385.2	147
Other crops	211	2,910	305.3	888.5	73.5	815.0	172
Unplanted	667	-	-	-	-	-	-
Total	13,200	-	-	-	-	-	4,766

Future with

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	4,349	3,400	174.3	592.7	249.7	342.9	1,492
Barley	2,244	3,150	186.5	587.6	229.3	358.3	804
Maize	1,716	4,250	148.9	632.6	282.5	350.2	601
Sunflower	1,716	1,500	265.9	398.9	100.8	298.1	512
Sugarbeet	132	10,000	28.2	281.9	78.8	203.1	27
Tabacco	0	1,600	2053.4	3,285.4	503.9	2,781.5	0
Vegetables	528	14,080	186.0	2,618.9	188.8	2,430.0	1,283
Fruit	264	6,250	96.0	600.0	100.9	499.1	132
Grapes	396	6,500	176.0	1,144.0	112.7	1,031.3	408
Alfalfa	396	3900	154.4	602.3	78.1	524.2	208
Other crops	660	3750	305.3	1,145.0	85.5	1,059.5	699
Unplanted	799	-	-	-	-	-	-
Total	13,200	-	-	-	-	-	6,165

	(000'US\$)	
	without	with
Total net value of production	4,766	6,165
less; imputed labor cost	717	928
Total net value of production	4,049	5,237
Net incremental value of production at full development		1,188

Rositza

Main Left Nikyupski

TABLE L-8-4 Net Value of Production at full development

Future without

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	2,344	3,000	177.0	531.1	231.2	299.9	703
Barley	1,032	2,900	189.3	548.9	210.0	338.9	350
Maize	1,125	2,600	151.6	394.1	199.9	194.3	219
Sunflower	1,547	1,200	268.7	322.4	77.3	245.1	379
Sugarbeet	94	15,000	28.4	426.6	49.4	377.2	35
Tabacco	0	1,250	2056.1	2,570.1	511.3	2,058.8	0
Vegetables	422	8,000	156.0	1,248.0	196.5	1,051.5	444
Fruit	422	3,060	76.0	232.6	88.3	144.3	61
Grapes	234	3,370	206.0	694.2	109.6	584.6	137
Alfalfa	1,266	2,620	157.2	411.8	80.6	331.2	419
Other crops	234	880	308.1	271.1	72.3	198.8	47
Unplanted	656						
Total	9,378						2,793

Future with

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000'US\$)
Wheat	2,813	3,460	177.0	612.6	262.4	350.1	985
Barley	1,125	3,060	189.3	579.1	241.6	337.6	380
Maize	703	4,200	151.6	636.7	288.2	348.5	245
Sunflower	1,407	1,580	268.7	424.5	103.6	320.9	451
Sugarbeet	234	18,000	28.4	511.9	83.3	428.6	100
Tabacco	0	1,600	2056.1	3,289.8	509.6	2,780.2	0
Vegetables	422	14,000	156.0	2,184.0	198.6	1,985.4	838
Fruit	422	6,000	76.0	456.0	99.8	356.2	150
Grapes	656	6,250	206.0	1,287.5	116.1	1,171.4	769
Alfalfa	750	3,400	157.2	534.3	80.6	453.7	340
Other crops	375.1	1150	308.1	354.3	91.8	262.4	98
Unplanted	469						
Total	9,378						4,358

	(000'US\$)	
	without	with
Total net value of production	2,793	4,358
less: imputed labor cost	761	833
Total net value of production	2,032	3,525
Net incremental value of production at full development		1,492

Sredna Tunja

Binkos Marash

Table L-9-1 Benefit Cost Ratio

Year	Project Cost (000\$)		Benefit (000\$)	Net Benefit (000\$)	Net Present Value (000\$)		Discounted Factor 10%
	Investment	O&M			Cost	Benefit	
1	3,390.0			-3390.0	3,081.8	0.0	0.909
2	3,390.0	4.2	615.7	-2778.5	2,805.1	508.9	0.826
3	3,390.0	8.4	1,231.4	-2167.0	2,553.3	925.2	0.751
4	3,390.0	12.7	1,847.2	-1555.5	2,324.1	1,261.6	0.683
5	3,390.0	16.9	2,462.9	-944.0	2,115.4	1,529.3	0.621
6		21.1	3,078.6	3057.5	11.9	1,737.8	0.564
7		21.1	3,078.6	3057.5	10.8	1,579.8	0.513
8		21.1	3,078.6	3057.5	9.8	1,436.2	0.467
9		21.1	3,078.6	3057.5	8.9	1,305.6	0.424
10		21.1	3,078.6	3057.5	8.1	1,186.9	0.386
11		21.1	3,078.6	3057.5	7.4	1,079.0	0.350
12		21.1	3,078.6	3057.5	6.7	980.9	0.319
13		21.1	3,078.6	3057.5	6.1	891.8	0.290
14		21.1	3,078.6	3057.5	5.6	810.7	0.263
15		21.1	3,078.6	3057.5	5.1	737.0	0.239
16		21.1	3,078.6	3057.5	4.6	670.0	0.218
17		21.1	3,078.6	3057.5	4.2	609.1	0.198
18		21.1	3,078.6	3057.5	3.8	553.7	0.180
19		21.1	3,078.6	3057.5	3.5	503.4	0.164
20		21.1	3,078.6	3057.5	3.1	457.6	0.149
21		21.1	3,078.6	3057.5	2.9	416.0	0.135
22		21.1	3,078.6	3057.5	2.6	378.2	0.123
23		21.1	3,078.6	3057.5	2.4	343.8	0.112
24		21.1	3,078.6	3057.5	2.1	312.6	0.102
25		21.1	3,078.6	3057.5	1.9	284.1	0.092
26		21.1	3,078.6	3057.5	1.8	258.3	0.084
27		21.1	3,078.6	3057.5	1.6	234.8	0.076
28		21.1	3,078.6	3057.5	1.5	213.5	0.069
29		21.1	3,078.6	3057.5	1.3	194.1	0.063
30		21.1	3,078.6	3057.5	1.2	176.4	0.057
Total					12,999	21,576	
B/C RATIO							1.660

Sredna Tunja

Nova Zagora

Table I-9-2 Benefit Cost Ratio

Year	Project Cost (000'S)		Benefit (000'S)	Net Benefit (000'S)	Net Present Value (000'S)		Discounted Factor 10%
	Investment	O&M			Cost	Benefit	
1	4,258.2			-4258.2	3,871.1	0.0	0.909
2	4,258.2	1.9	411.7	-3848.4	3,520.7	340.3	0.826
3	4,258.2	3.8	823.4	-3438.5	3,202.1	618.7	0.751
4	4,258.2	5.6	1,235.2	-3028.7	2,912.3	843.6	0.683
5	4,258.2	7.5	1,646.9	-2618.8	2,648.7	1,022.6	0.621
6		9.4	2,058.6	2049.2	5.3	1,162.0	0.564
7		9.4	2,058.6	2049.2	4.8	1,056.4	0.513
8		9.4	2,058.6	2049.2	4.4	960.4	0.467
9		9.4	2,058.6	2049.2	4.0	873.0	0.424
10		9.4	2,058.6	2049.2	3.6	793.7	0.386
11		9.4	2,058.6	2049.2	3.3	721.5	0.350
12		9.4	2,058.6	2049.2	3.0	655.9	0.319
13		9.4	2,058.6	2049.2	2.7	596.3	0.290
14		9.4	2,058.6	2049.2	2.5	542.1	0.263
15		9.4	2,058.6	2049.2	2.3	492.8	0.239
16		9.4	2,058.6	2049.2	2.0	448.0	0.218
17		9.4	2,058.6	2049.2	1.9	407.3	0.198
18		9.4	2,058.6	2049.2	1.7	370.3	0.180
19		9.4	2,058.6	2049.2	1.5	336.6	0.164
20		9.4	2,058.6	2049.2	1.4	306.0	0.149
21		9.4	2,058.6	2049.2	1.3	278.2	0.135
22		9.4	2,058.6	2049.2	1.2	252.9	0.123
23		9.4	2,058.6	2049.2	1.0	229.9	0.112
24		9.4	2,058.6	2049.2	1.0	209.0	0.102
25		9.4	2,058.6	2049.2	0.9	190.0	0.092
26		9.4	2,058.6	2049.2	0.8	172.7	0.084
27		9.4	2,058.6	2049.2	0.7	157.0	0.076
28		9.4	2,058.6	2049.2	0.7	142.8	0.069
29		9.4	2,058.6	2049.2	0.6	129.8	0.063
30		9.4	2,058.6	2049.2	0.5	118.0	0.057
Total					16,208	14,428	
B/C RATIO							0.890

Sredna Tunja

Nova Zagora M3

Table I-9-3 Benefit Cost Ratio

Year	Project Cost (000'S)		Benefit (000'S)	Net Benefit (000'S)	Net Present Value (000'S)		Discounted Factor 10%
	Investment	O&M			Cost	Benefit	
1	1,040.0			-1040.0	945.5	0.0	0.909
2	1,040.0	1.1	237.5	-803.6	860.4	196.3	0.826
3	1,040.0	2.2	475.0	-567.2	783.1	356.9	0.751
4	1,040.0	3.4	712.6	-330.8	712.6	486.7	0.683
5	1,040.0	4.5	950.1	-94.4	648.5	589.9	0.621
6		5.6	1,187.6	1182.0	3.2	670.4	0.564
7		5.6	1,187.6	1182.0	2.9	609.4	0.513
8		5.6	1,187.6	1182.0	2.6	554.0	0.467
9		5.6	1,187.6	1182.0	2.4	503.7	0.424
10		5.6	1,187.6	1182.0	2.2	457.9	0.386
11		5.6	1,187.6	1182.0	2.0	416.2	0.350
12		5.6	1,187.6	1182.0	1.8	378.4	0.319
13		5.6	1,187.6	1182.0	1.6	344.0	0.290
14		5.6	1,187.6	1182.0	1.5	312.7	0.263
15		5.6	1,187.6	1182.0	1.3	284.3	0.239
16		5.6	1,187.6	1182.0	1.2	258.5	0.218
17		5.6	1,187.6	1182.0	1.1	235.0	0.198
18		5.6	1,187.6	1182.0	1.0	213.6	0.180
19		5.6	1,187.6	1182.0	0.9	194.2	0.164
20		5.6	1,187.6	1182.0	0.8	176.5	0.149
21		5.6	1,187.6	1182.0	0.8	160.5	0.135
22		5.6	1,187.6	1182.0	0.7	145.9	0.123
23		5.6	1,187.6	1182.0	0.6	132.6	0.112
24		5.6	1,187.6	1182.0	0.6	120.6	0.102
25		5.6	1,187.6	1182.0	0.5	109.6	0.092
26		5.6	1,187.6	1182.0	0.5	99.6	0.084
27		5.6	1,187.6	1182.0	0.4	90.6	0.076
28		5.6	1,187.6	1182.0	0.4	82.4	0.069
29		5.6	1,187.6	1182.0	0.4	74.9	0.063
30		5.6	1,187.6	1182.0	0.3	68.1	0.057
Total					3,982	8,323	
B/C RATIO							2.090

Rositza

Main Left Nikyupski

Table L-9-4 Benefit Cost Ratio

Year	Project Cost (000\$)		Benefit (000\$)	Net Benefit (000\$)	Net Present Value (000\$)		Discounted Factor 10%
	Investment	O&M			Cost	Benefit	
1	2,218.8			-2218.8	2,017.1	0.0	0.909
2	2,218.8	0.8	298.5	-1921.1	1,834.4	246.7	0.826
3	2,218.8	1.7	597.0	-1623.5	1,668.3	448.5	0.751
4	2,218.8	2.5	895.5	-1325.8	1,517.2	611.6	0.683
5	2,218.8	3.4	1,194.0	-1028.2	1,379.8	741.4	0.621
6		4.2	1,492.5	1488.3	2.4	842.5	0.564
7		4.2	1,492.5	1488.3	2.2	765.9	0.513
8		4.2	1,492.5	1488.3	2.0	696.3	0.467
9		4.2	1,492.5	1488.3	1.8	633.0	0.424
10		4.2	1,492.5	1488.3	1.6	575.4	0.386
11		4.2	1,492.5	1488.3	1.5	523.1	0.350
12		4.2	1,492.5	1488.3	1.3	475.6	0.319
13		4.2	1,492.5	1488.3	1.2	432.3	0.290
14		4.2	1,492.5	1488.3	1.1	393.0	0.263
15		4.2	1,492.5	1488.3	1.0	357.3	0.239
16		4.2	1,492.5	1488.3	0.9	324.8	0.218
17		4.2	1,492.5	1488.3	0.8	295.3	0.198
18		4.2	1,492.5	1488.3	0.8	268.4	0.180
19		4.2	1,492.5	1488.3	0.7	244.0	0.164
20		4.2	1,492.5	1488.3	0.6	221.9	0.149
21		4.2	1,492.5	1488.3	0.6	201.7	0.135
22		4.2	1,492.5	1488.3	0.5	183.3	0.123
23		4.2	1,492.5	1488.3	0.5	166.7	0.112
24		4.2	1,492.5	1488.3	0.4	151.5	0.102
25		4.2	1,492.5	1488.3	0.4	137.8	0.092
26		4.2	1,492.5	1488.3	0.4	125.2	0.084
27		4.2	1,492.5	1488.3	0.3	113.8	0.076
28		4.2	1,492.5	1488.3	0.3	103.5	0.069
29		4.2	1,492.5	1488.3	0.3	94.1	0.063
30		4.2	1,492.5	1488.3	0.2	85.5	0.057
Total					8,440	10,460	
B/C RATIO							1.239

Table L-10 STANDARD CONVERSION FACTOR (SCF)

	1991	1992	1993	1994	1995
Total amount of export (CIF)	10,559.5	57,368.3	91,532.9	102,877.4	216,194.4 (LEVA)
Total amount of import (FOB)	10,314.9	45,132.4	104,281.2	131,523.1	227,010.3
Total amount of import tax	N.A.	3,107.1	7,746.1	12,538.3	19,486.2
Total amount of export tax	N.A.	41.4	260.8	580.8	2,620.3
BGL/1USD	0.786	16.678	23.339	27.648	54.247
1 Total amount of export (CIF)	13,434.5	3,439.8	3,921.9	3,721.0	3,985.4 (US\$)
2 Total amount of import (FOB)	13,123.3	2,706.1	4,468.1	4,757.1	4,184.8
3 Total amount of import tax	0.0	186.3	260.8	580.8	2620.3
4 Total amount of export tax	0.0	2.5	11.2	21.0	48.3
5 Export subsidy	0	0	0	0	0
6 = 1 + 2	26,557.8	6,145.9	8,390.0	8,478.0	8,170.1
7 = 1 + 2 + 3 - 4 + 5	26,557.8	6,329.7	8,639.6	9,037.8	10,742.1
8 = 6 / 7	1.000	0.971	0.971	0.938	0.761
				SCF	0.91

Table L-11-1 INPUT PRICES

Sredna Tunja

Input prices	Seeds	Machinery w/o	Water fee w/o	Water fee w/	Others w/o	Others w/	Machinery w/	(US\$)
Wheat	144.5	112.8	0	5	4.3	4.8	126.9	
Barley	120.0	113.2	0	5	3.9	4.5	126.9	
Maize	362.7	108.8	0	28.2	6.4	10.4	123.3	
Sunflower	158.1	56.4	0	11.7	1.6	1.8	56.4	
Sugarbeet	533.5	33.9	0	30	2.1	2.3	33.9	
Tabacco	0.0	72.8	32	32	26.3	24.6	72.8	
Vegetables	20,470.0	5	33.3	33.3	23.2	25.3	5	
Fruit	0.0	48.5	20	20	8.3	6.5	48.5	
Grapes	0.0	48.5	14.2	14.2	13.4	11	48.5	
Alfalfa	2,000.0	8.1	20	20	0	0	8.1	
Other crops	320.4	5	14.2	14.2	4	3	5	

Rositz

Input prices	Seeds	Machinery w/o	water fee w/o	water fee w/	Others w/o	Others w/	Machinery w/	(US\$)
Wheat	175	112.8	0	5.6	4.3	4.8	126.9	
Barley	156	113.2	0	5.6	3.9	4.5	126.9	
Maize	398	108.8	0	32.2	6.4	10.4	123.3	
Sunflower	170	56.4	0	13	1.6	1.8	56.4	
Sugarbeet	567	33.9	0	33.7	2.1	2.3	33.9	
Tabacco	0	72.8	33.7	33.7	26.3	24.6	72.8	
Vegetables	22,310	5	37.5	37.5	23.2	25.3	5	
Fruit	0	48.5	22.5	22.5	8.3	6.5	48.5	
Grapes	0	48.5	15	15	13.4	11	48.5	
Alfalfa	2,000	8.1	22.5	22.5	0	0	8.1	
Other crops	349	5	15	15	4	5	5	

TABLE L-11-2 INPUT PRICES

Sredna Tunja

	Seeds	Herbicides	Pesticides	Insecticides	Fungicides
Wheat	144.5	2.3	13.1	19.2	2.6
Barley	120.0	2.2	12.3	18.1	2.4
Maize	362.7	2.5	14.3	21.0	2.8
Sunflower	158.1	2.5	14.3	21.0	2.8
Sugarbeet	533.5	2.6	14.9	21.9	2.9
Tabacco	0.0	2.7	15.4	22.6	3.0
Vegetables	20,470.0	2.4	13.7	20.1	2.7
Fruit	0.0	2.9	16.5	24.2	3.2
Grapes	0.0	2.3	13.2	19.4	2.6
Alfalfa	2,000.0	2.7	15.4	22.6	3.0
Other crops	320.4	2.4	13.7	20.1	2.7

Rositza

	Seeds	Herbicides	Pesticides	Insecticides	Fungicides
Wheat	175.1	2.8	15.9	23.3	3.1
Barley	156.0	2.8	16.0	23.5	3.1
Maize	397.8	2.8	15.7	23.1	3.1
Sunflower	170.0	2.7	15.4	22.6	3.0
Sugarbeet	566.5	2.8	15.9	23.3	3.1
Tabacco	0.0	2.7	15.4	22.6	3.0
Vegetables	22,310.0	2.6	14.9	21.9	2.9
Fruit	0.0	2.0	11.6	17.0	2.3
Grapes	0.0	2.8	16.0	23.5	3.1
Alfalfa	2,000.0	2.7	15.4	22.6	3.0
Other crops	349.2	2.6	14.9	21.9	2.9

Part II

Sredna Tunja Nova Zagora M3 (F/S)

Table L-12-1

Current Farmland Use

	Present	Future without	Future with
Study Area	13,220	13,220	13,220
Service area	13,200	13,200	13,200
Wheat(non-irri)	4,434	4,434	4,620
Barley(non-irri)	2,445	2,445	2,244
Maize(irri)	1,513	1,513	1,716
Sunflower(non-irri)	2,156	2,156	264
Sunflower(irri)	0	0	1,320
Vegetables(irri)	134	134	726
Other crops(irri)	343	343	396
Grapes(non-irri)	305	305	0
Grapes(irri)	470	470	792
Alfalfa(irri)	132	132	528
Alfalfa(non-irri)	661	661	396
Unplanted or roads	607	607	528
	13,200	13,200	13,530

NOTE : Vegetables includes melon, Alfalfa includes millet and Vineyards(irri) includes Fruits(irri).
330ha of Vegetables will be doublecropped in a year.

Table L-13-1

Present and Projected future Yield

(kg/ha)

	Present	Future Without	Future With
Wheat(non-irri)	3,500	3,500	3,800
Barley(non-irri)	3,300	3,300	3,600
Maize(irri)	4,000	4,000	7,500
Sunflower(non-irri)	1,100	1,100	1,500
Sunflower(irri)	1,200	1,200	1,650
Vegetables(irri)	7,750	7,750	14,080
Other crops(irri)	2,910	2,910	3,900
Grapes(non-irri)	2,100	2,100	5,000
Grapes(irri)	4,500	4,500	10,000
Alfalfa(irri)	4,500	4,500	6,500
Alfalfa(non-irri)	2,750	2,750	3,500

Table L-14-1

Future with projects area cropped, Yields, and Production

Service area	Area cropped (ha)	Total Production(t)
Wheat(non-irri)	4,620	17,556
Barley(non-irri)	2,244	8,078
Maize(irri)	1,716	12,870
Sunflower(non-irri)	264	396
Sunflower(irri)	1,320	2,178
Vegetables(irri)	726	10,222
Other crops(irri)	396	1,544
Grapes(non-irri)	0	0
Grapes(irri)	792	7,920
Alfalfa(irri)	528	3,432
Alfalfa(non-irri)	396	1,386
Total	13,002	65,583

Note: The area of Uncropped or roads are excluded from the table above.

Table L-15-1

Crop Budget

Wheat(non-irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.5	3.5	3.8
Farmgate Price	(\$/ton)	223.2	174.3	174.3
Gross Value of production	(\$/ha)	781.2	610.1	662.4
Production costs excluding labor	(\$/ha)	289.4	277.6	310.8
Net value of production excluding labor	(\$/ha)	491.8	332.5	351.6
Labor requirement	(mandays/ha)	7.9	7.9	9.5

Barley(non-irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	3.3	3.3	3.60
Farmgate Price	(\$/ton)	169.2	186.5	186.5
Gross Value of production	(\$/ha)	558.4	615.6	671.5
Production costs excluding labor	(\$/ha)	240.6	231.1	272.0
Net value of production excluding labor	(\$/ha)	317.9	384.4	399.5
Labor requirement	(mandays/ha)	7.3	7.3	8.6

Maize(irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	4.00	4.00	7.59
Farmgate Price	(\$/ton)	173.3	148.9	148.9
Gross Value of production	(\$/ha)	693.2	595.4	1116.4
Production costs excluding labor	(\$/ha)	270.2	255.5	259.0
Net value of production excluding labor	(\$/ha)	422.9	340.0	857.5
Labor requirement	(mandays/ha)	20.4	20.4	43.2

Alfalfa(irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	4.50	4.50	6.50
Farmgate Price	(\$/ton)	175.8	154.4	154.4
Gross Value of production	(\$/ha)	791.1	694.9	1003.8
Production costs excluding labor	(\$/ha)	34.8	34.8	46.3
Net value of production excluding labor	(\$/ha)	756.4	660.2	957.5
Labor requirement	(mandays/ha)	1.8	1.8	2

Grapes(non-irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.1	2.1	5.0
Farmgate Price	(\$/ton)	80.0	80.0	80.0
Gross Value of production	(\$/ha)	168.0	168.0	400.0
Production costs excluding labor	(\$/ha)	97.1	97.1	134.4
Net value of production excluding labor	(\$/ha)	70.9	70.9	265.6
Labor requirement	(mandays/ha)	16	16	21

Vegetables(irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	7.8	7.8	14.1
Farmgate Price	(\$/ton)	2,405.7	2,053.4	2,053.4
Gross Value of production	(\$/ha)	18,644.0	15,913.7	28,911.5
Production costs excluding labor	(\$/ha)	260.6	254.7	327.4
Net value of production excluding labor	(\$/ha)	18,383.4	15,659.0	28,584.1
Labor requirement	(mandays/ha)	11.5	11.5	12.5

Table L-15-2

Crop Budget

Sunflower (non-irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	1.1	1.1	1.5
Farmgate Price	(\$/ton)	248.6	265.9	265.9
Gross Value of production	(\$/ha)	273.5	292.5	398.9
Production costs excluding labor	(\$/ha)	96.2	96.2	99.4
Net value of production excluding labor	(\$/ha)	177.2	196.3	299.5
Labor requirement	(mandays/ha)	2.1	2.2	2.2

Sunflower (irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	1.2	1.2	1.7
Farmgate Price	(\$/ton)	29.7	28.2	28.2
Gross Value of production	(\$/ha)	35.6	33.8	46.5
Production costs excluding labor	(\$/ha)	104.4	104.4	110.4
Net value of production excluding labor	(\$/ha)	-68.8	-70.5	-63.9
Labor requirement	(mandays/ha)	192.1	192.1	285

Other crops (irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.9	2.9	3.9
Farmgate Price	(\$/ton)	80.0	88.0	88.0
Gross Value of production	(\$/ha)	232.8	256.1	343.2
Production costs excluding labor	(\$/ha)	120.1	120.1	140.6
Net value of production excluding labor	(\$/ha)	112.7	136.0	202.6
Labor requirement	(mandays/ha)	42	42	83

Grapes (irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	4.5	4.5	10.0
Farmgate Price	(\$/ton)	140.0	140.0	140.0
Gross Value of production	(\$/ha)	630.0	630.0	1400.0
Production costs excluding labor	(\$/ha)	109.0	109.0	168.5
Net value of production excluding labor	(\$/ha)	521.0	521.0	1231.5
Labor requirement	(mandays/ha)	44	44	49.2

Alfalfa (non-irri) Crop Budget		Present	Future w/o Project	Future w/ Project
Yield	(ton/ha)	2.8	2.8	3.5
Farmgate Price	(\$/ton)	284.8	305.3	305.3
Gross Value of production	(\$/ha)	783.1	839.6	1068.6
Production costs excluding labor	(\$/ha)	17.8	17.8	17.8
Net value of production excluding labor	(\$/ha)	765.3	821.8	1050.8
Labor requirement	(mandays/ha)	44	44	49.2

Table L-16-1

Present and Future Farmgate Price of Farm Products and Inputs

Crops/Inputs	Unit	Present		Future	
		Economic	Financial	Economic	Financial
Wheat	\$/ton	223.2	321.0	174.3	249.4
Barley	\$/ton	169.2	211.8	186.5	233.7
Maize	\$/ton	173.3	217.0	148.9	186.0
Sunflower	\$/ton	248.6	302.6	265.9	323.9
Sugarbeet	\$/ton	29.7	37.3	28.2	35.4
Tabacco	\$/ton	2,405.7	3,161.6	2,053.4	2,698.0
Vegetables	\$/ton	80.0	80.0	88.0	88.0
Fruit	\$/ton	80.0	80.0	88.0	88.0
Grapes	\$/ton	140.0	140.0	140.0	140.0
Alfalfa	\$/ton	175.8	219.4	154.4	192.3
Other crops	\$/ton	284.8	448.4	305.3	481.5
Urea	\$/ton	258.3	405.8	199.2	310.6
Potassium Chloride	\$/ton	203.3	290.2	179.9	255.9
Phospate TSP	\$/ton	174.8	248.5	163.6	232.1

Table L-16-2

Prevailing Prices of crop seeds

Crops	Unit	Price
Wheat	\$/ton	160
Barley	\$/ton	130
Maize	\$/ton	160
Sunflower	\$/ton	100
Sugarbeet	\$/ton	-
Tabacco	\$/ton	-
Vegetables	\$/ton	80
Fruit	\$/ton	80
Grapes	\$/ton	140
Alfalfa	\$/ton	20
Other crops	\$/ton	110
Melons	\$/ton	50
Millet	\$/ton	50
Am.Nitrate	\$/ton	180
Potassium Chloride	\$/ton	-
Phospate TSP	\$/ton	520
Manure	\$/ton	3

Source: Farm Survey

Table L-17-1 PRODUCTION COST NOVA ZAGORA M3
Wheat(non-irri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	300	\$/metric ton	270		270	81	81
Fertilizer	N	kg nutrient/ha	200	\$/metric ton	258		406	51.66	81.15
	P	kg nutrient/ha	0	\$/metric ton	203		290	0	0
	K	kg nutrient/ha	0	\$/metric ton	175		248	0	0
	Manure	ton nutrient/ha	0	\$/metric ton	3		3	0	0
Chemical	Herbicides	25liters/ha	2.72	\$/liter	3.3		3.3	8.976	8.976
	Pesticides	25kg/ha	0	\$/liter	13.3		13.3	0.0	0.0
	Insecticides	5liters/ha	0	\$/liter	28.8		28.8	0	0
	Fungicides	12kg/ha	3.2	\$/liter	3.2		3.2	10.24	10.24
Machinery				\$/ha				110	110
Labor				\$/ha				-	-
Water fee				\$/ha				0	0
Others				\$/ha				27.51	60.95
Total Production Cost								289.98	352.32

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	300	\$/metric ton	270		270	81.0	81.0
Fertilizer	N	kg nutrient/ha	200	\$/metric ton	199		311	39.8	62.1
	P	kg nutrient/ha	0	\$/metric ton	180		256	0.0	0.0
	K	kg nutrient/ha	0	\$/metric ton	164		232	0.0	0.0
	Manure	ton nutrient/ha	0	\$/metric ton	3		3	0	0
Chemical	Herbicides	25liters/ha	2.72	\$/liter	3.3		3.3	8.976	8.976
	Pesticides	25kg/ha	0	\$/liter	13.3		13.3	0	0
	Insecticides	5liters/ha	0	\$/liter	28.8		28.8	0	0
	Fungicides	12kg/ha	3.2	\$/liter	3.2		3.2	10.24	10.24
Machinery				\$/ha				110	110
Labor				\$/ha				-	-
Water fee				\$/ha				0	0
Others				\$/ha				27.51	60.95
Total Production Cost								277.6	333.3

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price		Economic	Financial	Economic
Seed	Planted	kg/ha	300	\$/metric ton	270		270	81.00	81.00
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199		311	49.81	77.66
	P	kg nutrient/ha	0	\$/metric ton	180		256	0	0
	K	kg nutrient/ha	0	\$/metric ton	164		232	0	0
	Manure	ton nutrient/ha	0	\$/metric ton	3		3	0	0
Chemical	Herbicides	25liters/ha	2.72	\$/liter	3.3		3.3	9.0	9.0
	Pesticides	25kg/ha	1.64	\$/liter	13.3		13.3	21.8	21.8
	Insecticides	5liters/ha	0	\$/liter	28.8		28.8	0	0
	Fungicides	12kg/ha	3.1	\$/liter	3.2		3.2	9.9	9.9
Machinery				\$/ha				110	110
Labor				\$/ha				-	-
Water fee				\$/ha				0	0
Others				\$/ha				29.24	62.68
Total Production Cost								310.75	372.05

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Wheat(non-irri)	Economic price		
	Present	Future without	Future with
	289.98	277.57	310.75

Table L-17-2 PRODUCTION COST NOVA ZAGORA M3
Barley(non-irri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	240	\$/metric ton	200	200	48	48	
Fertilizer	N	kg nutrient/ha	180	\$/metric ton	258	406	41.33	64.9216	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	2.72	\$/liter	3.3	3.3	8.976	8.976	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	2.81	\$/liter	3.2	3.2	8.992	8.992	
Machinery				\$/ha			110	110	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			23.27	56.71	
Total Production Cost							240.56	297.60	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	240	\$/metric ton	200	200	48	48	
Fertilizer	N	kg nutrient/ha	180	\$/metric ton	199	311	31.88	49.70	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	2.72	\$/liter	3.3	3.3	8.976	8.976	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	2.81	\$/liter	3.2	3.2	8.992	8.992	
Machinery				\$/ha			110	110	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			23.27	56.71	
Total Production Cost							231.11	282.38	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	240	\$/metric ton	200	200	48	48	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199	311	49.81	77.66	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.00	0.00	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.00	0.00	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	2.72	\$/liter	3.3	3.3	9.0	9.0	
	Pesticides	25kgs/ha	1.64	\$/liter	13.3	13.3	21.8	21.8	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	2.73	\$/liter	3.2	3.2	8.7	8.7	
Machinery				\$/ha			110	110	
Labor				\$/ha					
Water fee				\$/ha			0	0	
Others				\$/ha			24.7	58.14	
Total Production Cost							272.03	333.32	

Note : Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Barley(non-irri)

Economic price		
Present	Future without	Future with
240.56	231.11	272.03

Table L-17-3 PRODUCTION COST NOVA ZAGORA M3
Maize(irri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	410	410	10.25	10.25	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	258	406	64.57	101.44	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	6.56	\$/liter	3.3	3.3	21.648	21.648	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery				\$/ha			125	125	
Labor				\$/ha			-	-	
Water fee				\$/ha			22.5	22.5	
Others				\$/ha			26.3	61.7	
Total Production Cost							270.23	342.50	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	410	410	10.25	10.25	
Fertilizer	N	kg nutrient/ha	250	\$/metric ton	199	311	49.81	77.66	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	6.56	\$/liter	3.3	3.3	21.648	21.648	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.00	0.00	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery				\$/ha			125	125	
Labor				\$/ha			-	-	
Water fee				\$/ha			22.5	22.5	
Others				\$/ha			26.3	61.7	
Total Production Cost							255.46	318.72	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	25	\$/metric ton	410	410	10.3	10.3	
Fertilizer	N	kg nutrient/ha	160	\$/metric ton	199	311	31.9	49.7	
	P	kg nutrient/ha	65	\$/metric ton	180	256	11.7	16.6	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	6.56	\$/liter	3.3	3.3	21.648	21.648	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0.22	\$/liter	28.8	28.8	6.325	6.325	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery				\$/ha			125	125	
Labor				\$/ha			-	-	
Water fee				\$/ha			20.1	20.1	
Others				\$/ha			32.1	67.7	
Total Production Cost							259.0	317.4	

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Maize(irri)

Present	Economic price	
	Future without	Future with
270.23	255.46	258.98

Table L-17-4 PRODUCTION COST NOVA ZAGORA M3
Sunflower(non-irri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	10	\$/metric ton	760	760	7.6	7.6	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	408	0	0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	0.91	\$/liter	3.3	3.3	3.003	3.003	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							75	75	
Labor							-	-	
Water fee							0	0	
Others							10.6	48.3	
Total Production Cost							96.22	131.89	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	10	\$/metric ton	760	760	7.6	7.6	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	0.91	\$/liter	3.3	3.3	3.003	3.003	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							75	75	
Labor							-	-	
Water fee							0	0	
Others							10.6	46.3	
Total Production Cost							96.22	131.89	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	10	\$/metric ton	760	760	7.60	7.60	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	0.961	\$/liter	3.3	3.3	3.1713	3.1713	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							75	75	
Labor							-	-	
Water fee							0	0	
Others							10.7	46.3	
Total Production Cost							99.42	135.09	

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Sunflower(non-irri)		Economic price	
Present	Future without	Future with	
96.22	96.22	99.42	

Table L-17-5 PRODUCTION COST NOVA ZAGORA M3
Sunflower(irri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	10	\$/metric ton	760	760	7.6	7.6	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	0.91	\$/liter	3.3	3.3	3.0	3.0	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0.0	0.0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery				\$/ha			75	75	
Labor				\$/ha			-	-	
Water fee				\$/ha			7.7	7.7	
Others				\$/ha			11.07	46.74	
Total Production Cost							104.4	140.0	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	10	\$/metric ton	760	760	7.6	7.6	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	25liters/ha	0.91	\$/liter	3.3	3.3	3.003	3.003	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery				\$/ha			75	75	
Labor				\$/ha			-	-	
Water fee				\$/ha			7.7	7.7	
Others				\$/ha			11.07	46.74	
Total Production Cost							104.37	140.04	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	10	\$/metric ton	760	760	7.60	7.60	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	2	\$/metric ton	3	3	6	6	
Chemical	Herbicides	25liters/ha	0.91	\$/liter	3.3	3.3	3.003	3.003	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery				\$/ha			75	75	
Labor				\$/ha			-	-	
Water fee				\$/ha			7.7	7.7	
Others				\$/ha			11.07	46.74	
Total Production Cost							110.37	146.04	

Note : Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Sunflower(irri)		Economic price	
Present	Future without	Future with	
104.37	104.37	110.37	

Table L-17-6 PRODUCTION COST NOVA ZAGORA M3

Vegetables(iri)

Present		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic		Financial	
Seed	Planted	kg/ha	2	\$/metric ton	42,000	42,000	84.0	84.0		
Fertilizer	N	kg nutrient/ha	100	\$/metric ton	258	406	25.8	40.6		
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0		
Chemical	Manure	ton nutrient/ha	10	\$/metric ton	3	3	30	30		
	Herbicides	2liters/ha	2.42	\$/liter	3.3	3.3	7.986	7.986		
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0		
	Insecticides	5liters/ha	0.54	\$/liter	28.8	28.8	15.525	15.525		
	Fungicides	12kgs/ha	0.93	\$/liter	3.2	3.2	2.976	2.976		
Machinery				\$/ha			20.0	20.0		
Labor				\$/ha						
Water fee				\$/ha			24.97	24.97		
Others				\$/ha			49.3	116.2		
Total Production Cost							260.6	342.2		

Future without		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic		Financial	
Seed	Planted	kg/ha	2	\$/metric ton	42,000	42,000	84	84		
Fertilizer	N	kg nutrient/ha	100	\$/metric ton	199	311	19.92	31.06		
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0		
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0		
Chemical	Manure	ton nutrient/ha	10	\$/metric ton	3	3	30	30		
	Herbicides	2liters/ha	2.42	\$/liter	3.3	3.3	7.986	7.986		
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0		
	Insecticides	5liters/ha	0.54	\$/liter	28.8	28.8	15.525	15.525		
	Fungicides	12kgs/ha	0.93	\$/liter	3.2	3.2	2.976	2.976		
Machinery				\$/ha			20.0	20.0		
Labor				\$/ha						
Water fee				\$/ha			24.97	24.97		
Others				\$/ha			49.3	116.2		
Total Production Cost							254.69	332.70		

Future with		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic		Financial	
Seed	Planted	kg/ha	2	\$/metric ton	42,000	42,000	84.0	84.0		
Fertilizer	N	kg nutrient/ha	160	\$/metric ton	199	311	31.9	49.7		
	P	kg nutrient/ha	50	\$/metric ton	180	256	9.0	12.8		
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0		
Chemical	Manure	ton nutrient/ha	12	\$/metric ton	3	3	36	36		
	Herbicides	2liters/ha	2.67	\$/liter	3.3	3.3	8.811	8.811		
	Pesticides	25kgs/ha	2.48	\$/liter	13.3	13.3	33.0	33.0		
	Insecticides	5liters/ha	0.54	\$/liter	28.8	28.8	15.525	15.525		
	Fungicides	12kgs/ha	0.93	\$/liter	3.2	3.2	2.976	2.976		
Machinery				\$/ha			15.0	15.0		
Labor				\$/ha						
Water fee				\$/ha			19.9	19.9		
Others				\$/ha			71.3	138.2		
Total Production Cost							327.4	415.9		

Note : Price of fertilizer is based on the price calculated from the international price.
 Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
 Farm labor cost is presented at the table of labor requirement.

Vegetables(iri)	Economic price		
	Present	Future without	Future with
	260.60	254.69	327.40

Table L-17-7 PRODUCTION COST NOVA ZAGORA M3
Other crops (iri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	50	\$/metric ton	610	610	30.5	30.5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	209	290	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	
Chemical	Herbicides	25liters/ha	1.86	\$/liter	3.3	3.3	6.138	6.138	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0.34	\$/liter	28.8	28.8	9.775	9.775	
	Fungicides	12kgs/ha	0.93	\$/liter	3.2	3.2	2.976	2.976	
Machinery				\$/ha			15.0	15.0	
Labor				\$/ha					
Water fee				\$/ha			25.0	25.0	
Others				\$/ha			15.7	15.7	
Total Production Cost							120.1	120.1	

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	50.0	\$/metric ton	610	610	30.5	30.5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	
Chemical	Herbicides	25liters/ha	1.86	\$/liter	3.3	3.3	6.138	6.138	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.00	0.00	
	Insecticides	5liters/ha	0.34	\$/liter	28.8	28.8	9.775	9.775	
	Fungicides	12kgs/ha	0.93	\$/liter	3.2	3.2	2.976	2.976	
Machinery				\$/ha			15.0	15.0	
Labor				\$/ha					
Water fee				\$/ha			25.0	25.0	
Others				\$/ha			15.7	15.7	
Total Production Cost							120.1	120.1	

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price				
					Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	50.0	\$/metric ton	610	610	30.5	30.5	
Fertilizer	N	kg nutrient/ha	70	\$/metric ton	199	311	13.9	21.7	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0	
	Manure	ton nutrient/ha	7	\$/metric ton	3	3	21	21	
Chemical	Herbicides	25liters/ha	1.87	\$/liter	3.3	3.3	6.171	6.171	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0	
	Insecticides	5liters/ha	0.4	\$/liter	28.8	28.8	11.5	11.5	
	Fungicides	12kgs/ha	0.93	\$/liter	3.2	3.2	2.976	2.976	
Machinery				\$/ha			15.0	15.0	
Labor				\$/ha					
Water fee				\$/ha			15.4	15.4	
Others				\$/ha			24.1	24.1	
Total Production Cost							140.6	148.4	

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Other crops (iri)

Economic price		
Present	Future without	Future with
120.1	120.1	140.6

Table L-17-8 PRODUCTION COST NOVA ZAGORA M3
Grapes(non-irri)

Present		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	256	406	0	0	0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	0	
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	0	
Chemical	Herbicides	2liters/ha	0	\$/liter	3.3	3.3	0	0	0	
	Pesticides	2kgs/ha	0.27	\$/liter	13.3	13.3	3.6	3.6	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	0	
	Fungicides	12kgs/ha	6.1	\$/liter	3.2	3.2	19.52	19.52	0	
Machinery							45	45	0	
Labor									0	
Water fee							0.0	0.0	0	
Others							14.0	40.8	0	
Total Production Cost								97.11	123.86	0

Future without		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	0	
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	0	
Chemical	Herbicides	2liters/ha	0	\$/liter	3.3	3.3	0	0	0	
	Pesticides	2kgs/ha	0.27	\$/liter	13.3	13.3	3.591	3.591	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	0	
	Fungicides	12kgs/ha	6.1	\$/liter	3.2	3.2	19.52	19.52	0	
Machinery							45	45	0	
Labor									0	
Water fee							0.0	0.0	0	
Others							14.0	40.8	0	
Total Production Cost								97.11	123.86	0

Future with		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	0	
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	0	
Chemical	Herbicides	2liters/ha	0	\$/liter	3.3	3.3	0	0	0	
	Pesticides	2kgs/ha	3.12	\$/liter	13.3	13.3	41.5	41.5	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	0	
	Fungicides	12kgs/ha	5.9	\$/liter	3.2	3.2	18.88	18.88	0	
Machinery							45	45	0	
Labor									0	
Water fee							0.0	0.0	0	
Others							14.0	40.8	0	
Total Production Cost								134.4	161.1	0

Note : Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Grapes(non-irri)		Economic price	
Present	Future without	Future with	
97.11	97.11	134.38	

Table L-17-9 PRODUCTION COST NOVA ZAGORA M3
Grapes(irri)

Present		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.00	0.00	0
	P	kg nutrient/ha	0	\$/metric ton	203	290	0	0	0
	K	kg nutrient/ha	0	\$/metric ton	175	248	0	0	0
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	0
Chemical	Herbicides	25liters/ha	0	\$/liter	3.3	3.3	0	0	0
	Pesticides	25kgs/ha	0.27	\$/liter	13.3	13.3	3.6	3.6	0
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	0
	Fungicides	12kgs/ha	6.1	\$/liter	3.2	3.2	19.52	19.52	0
Machinery				\$/ha			45	45	0
Labor				\$/ha			-	-	0
Water fee				\$/ha			9.9	9.9	0
Others				\$/ha			16.02	42.77	0
Total Production Cost							109.03	135.78	0

Future without		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0.00	0.00	0
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	0
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	0
	Manure	ton nutrient/ha	5	\$/metric ton	3	3	15	15	0
Chemical	Herbicides	25liters/ha	0	\$/liter	3.3	3.3	0	0	0
	Pesticides	25kgs/ha	0.27	\$/liter	13.3	13.3	3.59	3.59	0
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	0
	Fungicides	12kgs/ha	6.1	\$/liter	3.2	3.2	19.52	19.52	0
Machinery				\$/ha			45	45	0
Labor				\$/ha			-	-	0
Water fee				\$/ha			9.9	9.9	0
Others				\$/ha			16.02	42.77	0
Total Production Cost							109.03	135.78	0

Future with		Physical Inputs		Unit Prices		Total Value			
		Unit	Quantity	Unit	Price	Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	0	\$/metric ton	0	0	0	0	0
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	0
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	0
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	0
	Manure	ton nutrient/ha	13.5	\$/metric ton	3	3	40.5	40.5	0
Chemical	Herbicides	25liters/ha	0	\$/liter	3.3	3.3	0	0	0
	Pesticides	25kgs/ha	3.12	\$/liter	13.3	13.3	41.5	41.5	0
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	0
	Fungicides	12kgs/ha	3	\$/liter	3.2	3.2	9.6	9.6	0
Machinery				\$/ha			45	45	0
Labor				\$/ha			-	-	0
Water fee				\$/ha			11.5	11.5	0
Others				\$/ha			20.43	47.18	0
Total Production Cost							168.53	195.28	0

Note : Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAP local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Grapes(irri)	Economic price		
	Present	Future without	Future with
	109.03	109.03	168.53

Table L-17-10 PRODUCTION COST NOVA ZAGORA M3
Alfalfa (irri)

Present		Physical Inputs		Unit Prices		Total Value			
						Price			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	3	\$/metric ton	2,000	2,000	5.0	5.0	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.0	0.0	
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0	
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	2liters/ha	1.52	\$/liter	3.3	3.3	5.016	5.016	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							5	5	
Labor							-	-	
Water fee							15	15	
Others							4.75	4.75	
Total Production Cost							34.8	34.8	

Future without		Physical Inputs		Unit Prices		Total Value			
						Price			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	3	\$/metric ton	2,000	2,000	5	5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	2liters/ha	1.52	\$/liter	3.3	3.3	5.016	5.016	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							5	5	
Labor							-	-	
Water fee							15	15	
Others							4.75	4.75	
Total Production Cost							34.766	34.766	

Future with		Physical Inputs		Unit Prices		Total Value			
						Price			
		Unit	Quantity	Unit	Economic	Financial	Economic	Financial	
Seed	Planted	kg/ha	3	\$/metric ton	2,000	2,000	5	5	
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0	
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0	
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0	
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0	
Chemical	Herbicides	2liters/ha	1.52	\$/liter	3.3	3.3	5	5	
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0	
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0	
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0	
Machinery							5.0	5.0	
Labor							-	-	
Water fee							25.2	25.2	
Others							6.0	6.0	
Total Production Cost							46.3	46.3	

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAPI local price index and data from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Alfalfa (irri)		
	Economic price	
	Present	Future without
	34.766	34.766
		46.26

Table L-17-11 PRODUCTION COST NOVA ZAGORA M3
Alfalfa(non-irr)

Present		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	3	\$/metric ton	2,000	2,000	5.0	5.0		
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	258	406	0.0	0.0		
	P	kg nutrient/ha	0	\$/metric ton	203	290	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	175	248	0.0	0.0		
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0		
Chemical	Herbicides	25liters/ha	1.52	\$/liter	3.3	3.3	5.02	5.02		
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0.0	0.0		
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0		
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0		
Machinery				\$/ha			5.0	5.0		
Labor				\$/ha			-	-		
Water fee				\$/ha			0.0	0.0		
Others				\$/ha			2.8	2.8		
Total Production Cost							17.8	17.8		

Future without		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	3	\$/metric ton	2,000	2,000	5.0	5.0		
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0.0	0.0		
	P	kg nutrient/ha	0	\$/metric ton	180	256	0.0	0.0		
	K	kg nutrient/ha	0	\$/metric ton	164	232	0.0	0.0		
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0		
Chemical	Herbicides	25liters/ha	1.52	\$/liter	3.3	3.3	5.02	5.02		
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0		
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0		
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0		
Machinery				\$/ha			5.0	5.0		
Labor				\$/ha			-	-		
Water fee				\$/ha			0.0	0.0		
Others				\$/ha			2.8	2.8		
Total Production Cost							17.8	17.8		

Future with		Physical Inputs		Unit Prices		Total Value				
		Unit	Quantity	Unit	Price		Economic	Financial	Economic	Financial
Seed	Planted	kg/ha	3	\$/metric ton	2,000	2,000	5	5		
Fertilizer	N	kg nutrient/ha	0	\$/metric ton	199	311	0	0		
	P	kg nutrient/ha	0	\$/metric ton	180	256	0	0		
	K	kg nutrient/ha	0	\$/metric ton	164	232	0	0		
	Manure	ton nutrient/ha	0	\$/metric ton	3	3	0	0		
Chemical	Herbicides	25liters/ha	1.52	\$/liter	3.3	3.3	5	5		
	Pesticides	25kgs/ha	0	\$/liter	13.3	13.3	0	0		
	Insecticides	5liters/ha	0	\$/liter	28.8	28.8	0	0		
	Fungicides	12kgs/ha	0	\$/liter	3.2	3.2	0	0		
Machinery				\$/ha			5	5		
Labor				\$/ha			-	-		
Water fee				\$/ha			0	0		
Others				\$/ha			2.8	2.8		
Total Production Cost							17.8	17.8		

Note: Price of fertilizer is based on the price calculated from the international price.
Prices of seeds, chemical, machinery, water fee, others are adjusted to local price based on the SAMI local price index and date from Farm Management Section.
Farm labor cost is presented at the table of labor requirement.

Alfalfa(non-irr)	Economic price		
	Present	Future without	Future with
	17.8	17.8	17.8

Table L-18-1 LABOR REQUIREMENT NOVA ZAGORA M3

Total		(000 mandays/ha)												
Present	12,593	48	53	46	111	46	14	19	14	16	8	28	36	440
Future without	12,593	48	53	46	111	46	14	19	14	16	8	28	36	440
Future with	13,002	60	53	69	155	86	43	46	71	52	30	36	48	749

Total		(million mandays)												
Present		0.05	0.05	0.05	0.11	0.05	0.01	0.02	0.01	0.02	0.01	0.03	0.04	0.44
Future without		0.05	0.05	0.05	0.11	0.05	0.01	0.02	0.01	0.02	0.01	0.03	0.04	0.44
Future with		0.06	0.05	0.07	0.15	0.09	0.04	0.05	0.07	0.05	0.03	0.04	0.05	0.75

Market wage rate		(US\$/day)												
Future without		1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Future with		1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56

Economic cost of Daily Farm Labor (US\$/day)														
Future without		1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Future with		1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56

Economic cost of Farm Labor (million US\$)														
Future without		0.075	0.082	0.072	0.172	0.072	0.022	0.030	0.022	0.024	0.013	0.044	0.056	0.686
Future with		0.094	0.082	0.108	0.241	0.133	0.068	0.071	0.110	0.081	0.047	0.056	0.075	1.168

Incremental cost of Farm Labor (million US\$)		total												
W/-W/O		0.02	0.00	0.04	0.07	0.06	0.05	0.04	0.09	0.06	0.03	0.01	0.02	0.48

(000'US\$)

Conversion factor for labor 1

Sredna Tunja Nova Zagora M3 (F/S)

Table L-19-1 Net Value of Production at full development

Future without

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000*US\$)
Wheat(non-irri)	4,434	3,500	223.2	781.2	277.6	503.6	2,233
Barley(non-irri)	2,445	3,300	169.2	558.4	231.1	327.3	800
Maize(irri)	1,513	4,000	173.3	693.2	255.5	437.7	662
Sunflower(non-irri)	2,156	1,100	248.6	273.5	96.2	177.2	382
Sunflower(irri)	0	1,200	248.6	298.3	104.4	194.0	0
Vegetables(irri)	134	7,750	80.0	620.0	254.7	365.3	49
Other crops(irri)	343	2,910	284.8	828.6	120.1	708.5	243
Grapes(non-irri)	305	2,100	140.0	294.0	97.1	196.9	60
Grapes(irri)	470	4,500	140.0	630.0	109.0	521.0	245
Alfalfa(irri)	132	4,500	175.8	791.1	34.8	756.4	100
Alfalfa(non-irri)	661	2,750	175.8	483.5	17.8	465.7	308
Unplanted or roads	607	-	-	-	-	-	-
Total	13,200						5,082

Future with

	Area	Yield	Farmgate Price	Gross value of Production	Production Cost	Net Value of Production	Net Value of Production in project area
	(ha)	(kg/ha)	(US\$/ton)	(US\$/ha)	(US\$/ha)	(US\$/ha)	(000*US\$)
Wheat(non-irri)	4,620	3,800	174.3	662.4	310.8	351.6	1,625
Barley(non-irri)	2,244	3,600	186.5	671.5	272.0	399.5	896
Maize(irri)	1,716	7,500	148.9	1,116.4	259.0	857.5	1,471
Sunflower(non-irri)	264	1,500	265.9	398.9	99.4	299.5	79
Sunflower(irri)	1,320	1,650	265.9	438.8	110.4	328.4	433
Vegetables(irri)	726	14,080	88.0	1,239.0	327.4	911.6	662
Other crops(irri)	396	3,900	305.3	1,190.8	140.6	1,050.2	416
Grapes(non-irri)	0	5,000	140.0	700.0	134.4	565.6	0
Grapes(irri)	792	10,000	140.0	1,400.0	168.5	1,231.5	975
Alfalfa(irri)	528	6500	154.4	1,003.8	46.3	957.5	506
Alfalfa(non-irri)	396	3500	154.4	540.5	17.8	522.7	207
Unplanted or roads	528	-	-	-	-	-	-
Total	13,530						7,271

	(000*US\$)	
	without	with
Total net value of production	5,082	7,271
less; imputed labor cost	686	1,168
Total net value of production	4,396	6,103
Net incremental value of production at full development		1,707

NOTE : Vegetables includes melon, Alfalfa includes millet and Vineyards(irri) includes Fruits(irri).
330ha of Vegetables will be doublecropped in a year.

Sredna Tunja Nova Zagora M3

Table L-19-2

Year	Project Cost (000'\$)		Benefit (000'\$)	Net Benefit (000'\$)	Net Present Value (000'\$)		Discounted Factor 24.42%
	Investment	O&M			Cost	Benefit	
1	197.2	0.0		-197.2	158.5	0.0	0.804
2	1,462.8	1.0	341.4	-1,122.5	945.6	220.5	0.646
3	2,078.4	2.0	682.7	-1,397.7	1,080.1	354.5	0.519
4	1,733.7	75.9	1,024.1	-785.6	755.2	427.3	0.417
5	2,150.2	91.7	1,365.4	-876.4	751.9	457.9	0.335
6		99.5	1,706.8	1,607.3	26.8	460.1	0.270
7		99.5	1,706.8	1,607.3	21.5	369.8	0.217
8		99.5	1,706.8	1,607.3	17.3	297.2	0.174
9		53.4	1,706.8	1,653.3	7.5	238.9	0.140
10		53.4	1,706.8	1,653.3	6.0	192.0	0.112
11		53.4	1,706.8	1,653.3	4.8	154.3	0.090
12		53.4	1,706.8	1,653.3	3.9	124.0	0.073
13		53.4	1,706.8	1,653.3	3.1	99.7	0.058
14		53.4	1,706.8	1,653.3	2.5	80.1	0.047
15		53.4	1,706.8	1,653.3	2.0	64.4	0.038
16		53.4	1,706.8	1,653.3	1.6	51.8	0.030
17		53.4	1,706.8	1,653.3	1.3	41.6	0.024
18		53.4	1,706.8	1,653.3	1.0	33.4	0.020
19		53.4	1,706.8	1,653.3	0.8	26.9	0.016
20		53.4	1,706.8	1,653.3	0.7	21.6	0.013
21		53.4	1,706.8	1,653.3	0.5	17.4	0.010
22		53.4	1,706.8	1,653.3	0.4	14.0	0.008
23		53.4	1,706.8	1,653.3	0.4	11.2	0.007
24		53.4	1,706.8	1,653.3	0.3	9.0	0.005
25		53.4	1,706.8	1,653.3	0.2	7.2	0.004
26		53.4	1,706.8	1,653.3	0.2	5.8	0.003
27		53.4	1,706.8	1,653.3	0.1	4.7	0.003
28		53.4	1,706.8	1,653.3	0.1	3.8	0.002
29		53.4	1,706.8	1,653.3	0.1	3.0	0.002
30		53.4	1,706.8	1,653.3	0.1	2.4	0.001
Total	7,622.4	1,644.6			3,795	3,794	
B/C RATIO							1.000
Internal Rate Return (IRR)							24.42%
Net Present Value (NPV) (000'\$)							3,794

Table L-19-3 PROJECT COST DISBURSEMENT SCHEDULE

(Unit: US\$)

Agri-Service Center (Agri-Business Information Center & Extension Service Office)

Construction Cost	L/C	1998	1999	2000	2001	2002	Total
		F/C	0	136,013	10,000	0	
	Total	0	136,013	10,000	0	0	146,013
Engineering Fee	L/C	10,621	3,540	3,540	0	0	17,701
	F/C	10,621	3,540	3,540	0	0	17,701
	Total	21,242	7,080	7,080	0	0	35,402
Total	L/C	10,621	139,553	13,540	0	0	163,714
	F/C	10,621	37,543	177,540	0	0	225,704
	Total	21,242	177,096	191,080	0	0	389,418
Total Economic Cost	L/C	9,665	126,993	12,321	0	0	148,980
	F/C	11,683	41,297	195,294	0	0	248,274
	Total	21,348	168,291	207,615	0	0	397,254

Agri-Service Center (Agricultural Machinery Workshop)

Construction Cost	L/C	1998	1999	2000	2001	2002	Total
		F/C	0	209,614	5,000	0	
	Total	0	209,614	5,000	0	0	214,614
Engineering Fee	L/C	10,981	3,660	3,660	0	0	18,301
	F/C	10,981	3,660	3,660	0	0	18,301
	Total	21,962	7,320	7,320	0	0	36,602
Total	L/C	10,981	213,274	8,660	0	0	232,915
	F/C	10,981	55,070	103,660	0	0	169,711
	Total	21,962	268,344	112,320	0	0	402,626
Total Economic Cost	L/C	9,993	194,079	7,881	0	0	211,953
	F/C	12,079	60,571	114,026	0	0	186,682
	Total	22,072	254,650	121,907	0	0	398,635

On-Farm Storage Facilities

Construction Cost	L/C	1998	1999	2000	2001	2002	Total
		F/C	0	0	0	248,400	
	Total	0	0	0	248,400	593,840	848,240
Engineering Fee	L/C	0	0	31,809	10,603	10,603	53,015
	F/C	0	0	31,809	10,603	10,603	53,015
	Total	0	0	63,618	21,206	21,206	106,030
Total	L/C	0	0	31,809	259,003	610,443	901,255
	F/C	0	0	31,809	72,703	160,563	265,075
	Total	0	0	63,618	331,706	771,006	1,166,330
Total Economic Cost	L/C	0	0	28,946	235,693	555,503	820,142
	F/C	0	0	34,990	79,973	176,619	291,583
	Total	0	0	63,936	315,666	732,122	1,111,725

Korten Collecting Point

Construction Cost	L/C	1998	1999	2000	2001	2002	Total
		F/C	0	0	281,040	50,720	
	Total	0	0	281,040	50,720	50,720	382,480
Engineering Fee	L/C	0	11,475	3,825	1,913	1,913	19,126
	F/C	0	11,475	3,825	1,913	1,913	19,126
	Total	0	22,950	7,650	3,826	3,826	38,252
Total	L/C	0	11,475	3,825	52,633	52,633	120,566
	F/C	0	11,475	284,865	1,913	1,913	300,166
	Total	0	22,950	288,690	54,546	54,546	420,732
Total Economic Cost	L/C	0	10,442	3,481	47,896	47,896	109,715
	F/C	0	12,623	313,352	2,104	2,104	339,183
	Total	0	23,065	316,832	50,000	50,000	439,898

Rehabilitation of Irrigation Facilities

Construction Cost	L/C	1998	1999	2000	2001	2002	Total
		F/C	0	734,740	1,245,140	1,245,140	
	Total	0	734,740	1,245,140	1,245,140	1,245,141	4,470,161
Engineering Fee	L/C	76,521	44,637	44,637	44,637	44,637	255,069
	F/C	76,520	44,637	44,637	44,637	44,637	255,068
	Total	153,041	89,274	89,274	89,274	89,274	510,137
Total	L/C	76,521	779,377	1,289,777	1,289,777	1,289,778	4,725,230
	F/C	76,520	279,612	176,714	176,714	176,712	886,272
	Total	153,041	1,058,989	1,466,491	1,466,491	1,466,490	5,611,502
Total Economic Cost	L/C	69,634	769,233	1,173,697	1,173,697	1,173,698	4,299,959
	F/C	84,172	307,573	194,385	194,385	194,383	974,899
	Total	153,806	1,076,806	1,368,082	1,368,082	1,368,081	5,274,859

Total Cost

Construction Cost	L/C	1998	1999	2000	2001	2002	Total
		F/C	0	1,080,367	1,260,140	1,544,260	
	Total	0	1,080,367	1,260,140	1,544,260	1,895,701	5,780,468
Engineering Fee	L/C	99,123	63,312	87,471	57,153	57,153	363,212
	F/C	98,122	63,312	87,471	57,153	57,153	363,211
	Total	196,245	126,624	174,942	114,306	114,306	726,423
Total	L/C	99,123	1,143,679	1,347,611	1,601,413	1,952,854	6,143,680
	F/C	98,122	389,700	274,588	251,330	339,188	1,846,928
	Total	196,245	1,527,379	1,622,199	1,852,743	2,292,042	7,990,608
Total Economic Cost	L/C	89,292	1,040,748	1,226,326	1,457,286	1,777,097	5,590,749
	F/C	107,934	422,070	852,047	276,463	373,107	2,031,621
	Total	197,226	1,462,818	2,078,373	1,733,749	2,150,204	7,622,370

TABLE L-19-4 Operation and Maintenance Cost

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Agri-Service Center				15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960
Agri-Business Information Center & Extension Service Office)																			
Agri-Service Center				15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960
Agri-Service Center (Agricultural Machinery Workshop)				13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560
On-farm Storage Facilities				13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560
Korten Collecting Point				7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460
Rehabilitation of Irrigation Facilities				8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680
Training for Agri-Service Center Staff				28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900
Training for Water Management				21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680
Total Financial Cost				83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460
Total Economic Cost (1000 US\$)				91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Agri-Service Center				15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960
Agri-Business Information Center & Extension Service Office)														
Agri-Service Center				15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960	15,960
Agri-Service Center (Agricultural Machinery Workshop)				13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560
On-farm Storage Facilities				13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560	13,560
Korten Collecting Point				7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460	7,460
Rehabilitation of Irrigation Facilities				8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680
Training for Agri-Service Center Staff				28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900	28,900
Training for Water Management				21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680	21,680
Total Financial Cost				83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460	83,460
Total Economic Cost (1000 US\$)				91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66	91,66

APPENDIX M
ENVIRONMENT

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Table M-1 Permissible Degree of Pollution of Different Categories of Water

No.	Indexes	Unit	Category		
			I	II	III
1	2	3	4	5	6
<i>Group A. General physical and Inorganic chemical Indexes</i>					
1.	Temperature	°C	should not exceed by 3° the average temperature for the season		
2.	Colour	degrees	20°. Without apparent additional colouring		
3.	Smell	grades	2	3	3
4.	Active reaction	pH	6.5-8.5	6.0-8.5	6.0-9.0
5.	Oxygen saturation	%	75	40	20
6.	Conductance	MKS	700	1300	1600
7.	Dissolved oxygen	mg/dm ³	6	4	2
8.	Dissolved substances	•	700	1000	1500
9.	Nondissolved substances	•	30	50	100
10.	Total hardness	mgeq/dm ³	7	10	14
11.	Chlorine ions	mg/dm ³	200	300	400
12.	Sulphate ions	•	200	300	400
13.	Hydrogen sulphide (free)	•	not permitted		0.1
14.	Iron (total)	•	0.5	1.5	5
15.	Manganese (total)	•	0.1	0.3	0.8
16.	Nitrogen (ammonium)	•	0.1	2.0	5
17.	Nitrite nitrogen	•	0.002	0.04	0.06
18.	Nitrate nitrogen	•	5	10	20
19.	Phosphates (PO ₄)	•	0.2	1.0	2
20.	Phosphorus (total content as PO ₄)	•	0.4	2.0	3
21.	Selenium	•	0.01	0.01	0.01
22.	Beryllium	•	0.0002	0.0002	0.0002
23.	Vanadium	•	0.1	0.01	1
24.	Molybdenum	•	0.5	0.5	3
25.	Barium	•	1	1	4
26.	Boron	•	not permitted		1
27.	Silver	•	0.01	0.01	0.01
28.	Uranium	•	0.6	0.6	0.6
29.	Radium 226	mBq/dm ³	150	150	150
<i>Group B. General Indexes for organic contaminants</i>					
30.	Organic nondissolved substances	mg/dm ³	5	15	25
31.	Oxidizability (permanganate)	•	10	30	40
32.	COD (bichromate)	•	25	70	100
33.	BOD ₅	•	5	15	25
34.	Dissolved organic hydrogen	•	5	12	20
35.	Extracted substances (with tetrachloromethane)	•	0.5	3	5
36.	Organic nitrogen	•	1	5	10
<i>Group C. Indexes for Inorganic substances of Industrial origin</i>					
37.	Mercury	mg/dm ³	0.0002	0.001	0.01
38.	Cadmium	•	0.005	0.01	0.02
39.	Lead	•	0.02	0.05	0.2
40.	Arsenic	•	0.02	0.05	0.2
41.	Copper	•	0.05	0.1	0.5
42.	Chromium (threevalent)	•	0.1	0.5	1
43.	Chromium (sixvalent)	•	0.02	0.05	0.1
44.	Cobalt	•	0.02	0.1	0.5
45.	Nickel	•	0.05	0.2	0.5
46.	Zinc	•	1	5	10
47.	Total beta activity	mBq/dm ³	750	750	750
48.	Cyanides (easily splittable)	mg/dm ³	not permitted	0.05	0.1
49.	Cyanides (total quantity)	•	not permitted	0.5	1.0
50.	Fluorides (total quantity)	•	0.5	1.5	3
51.	Free active chlorine	•	not permitted	0.05	0.1

No.	Indexes	Unit	Category		
			I	II	III
1	2	3	4	5	6
<i>Group D. Indexes for organic substances of industrial origin</i>					
52.	Anionozactive detergents	mg/dm ³	0.5	1	3
53.	Phenols (volatile)	"	0.01	0.05	0.1
54.	Petroleum products	"	not permitted	0.3	0.5
55.	Aldrin	"	0.0002	0.0002	0.0002
56.	Pyridine	"	0.2	0.2	0.5
57.	Xanthogenates	"	0.001	0.01	0.1
58.	Saponins	"	0.2	0.2	1
59.	Styrene	"	0.1	0.2	0.5
60.	Benzene	"	0.5	0.5	1
61.	Formaldehyde	"	0.5	0.5	1
62.	Caprolactam	"	1	1	1
63.	Phthalic acid	"	0.5	1	5
64.	Phenyltolone (Agris 1050)	"	0.0001	0.0001	0.3
65.	Zolon (Agris 1060)	"	0.0001	0.0001	0.002
66.	Saturn	"	0.1	0.1	1
67.	Atrazine (Caazine)	"	0.25	0.25	2.5
68.	Lasso	"	0.3	0.3	0.5
69.	2.4D	"	1	1	5
70.	Sevin (Dicarbam)	"	0.002	0.002	0.1
71.	Vinylchloride	"	0.01	0.01	0.01
72.	Dichloroethane	"	1.5	1.5	1.5
73.	Apholone	"	0.5	1.0	1.0
74.	Patoran	"	0.2	2.0	2.0
75.	Dimide	"	1.0	1.0	5.0
76.	Ramrod	"	0.5	0.5	1.0
77.	Treflan	"	1.0	1.0	5.0
78.	Propanide	"	0.1	1.0	2.0
79.	Diphensoquate	"	0.2	1.0	3.0
<i>Group E. Biological Indexes</i>					
80.	Saprobity		oligo	beta meso	alpha meso
	Panitz-Book Index		<1.5	<2.5	<3.2
	Zellnka-Marvan-Rotstain Index		>60	>40	>25
81.	Macrozoobentos species diversity (after Shannon)		>3	>2	>1
82.	Macrozoobentos matching degree		>0.7	>0.6	>0.5
83.	Macrozoobentos domination degree		<0.2	<0.3	<0.5
84.	Total number of microorganisms (direct count)		<10 ⁶	<5.10 ⁶	10 ⁵
85.	Total coli titre	cm ³	<0.1	<0.1	<0.001
86.	Escherichia coli titre heat resistant	cm ³	<1.0	<1.0	<0.01
87.	Pathogenic microorganisms		Not permitted		

Table M-2 Agricultural Projects Liable to EIA and Requirements for the Preliminary EIA

According to regulation no.1 on Environmental Impact Assessment the agricultural projects are subject to EIA, requirement for preliminary EIA report and permissible degree of pollution parameters for categories are presented below.

(1) Agricultural Projects Liable to EIA

- 1) land consolidation projects
- 2) Projects for putting of uncultivated or semi-desolate lands to intensive agric. usage, as well as projects for utilization of agric. lands damaged by the operation of industrial installations
- 3) water economy and melioration projects in agriculture
- 4) projects for primary afforestations if they are likely to bring to negative consequences and projects for deforestation with the purpose of land use for agricultural production or in another way
- 5) poultry farm projects (more than 2,000 birds)
- 6) stock-breeding farm projects(cattle-more than 50, pigs-more than 100, sheep-more than 200)
- 7) fish-breeding farm projects
- 8) projects for drainage of sea and swamp land

(2) Requirements for the Preliminary EIA Report

According to the Law, before carrying out a final EIA, a preliminary EIA should be carried out and depending on the results of the report, decision for final EIA should be made. The preliminary EIA report shall contain:

1. An annotation of the Project, facility or activity covering
 - 1.1 A location Map(chart) of the Area
 - 1.2 The Characteristics of the Technology(a technological chart)
 - 1.3 The Environmental and Economic Characteristics

2. A Description of the Environment subject to impact

3. A forecast about the impact on the Environment

The components subject to have an impact and their characteristics are as follows:

Components

Characteristics

- | | |
|--|--|
| 1. Air | a. deterioration of quality of prevailing wind, precipitation/humidity/temperature/inversions |
| 2. Water | a. condition of intake,
b. characteristics of waste water
c. degree of impact on water body
d. toxicity for water ecosystems; underground water regime,
e. impact on hydrological balance
f. impact on water users
g. impact on water consumption, drainage systems, floods, silting regime etc. |
| 3. Soils | a. deterioration of category, structure/productivity
b. impact on soil type
c. chemical/physical damage
d. degree of erosion |
| 4. Plants/Animals/Protected Areas | a. extinction or decrease of population
b. reduction or disruption of nutritive links
c. extinction or damage of habitat
d. extinction of threatened and rare species |
| 5. Landscape | a. change/damage of the landscape |
| 6. Human Health and Safety | a. condition of working place, habitation
b. condition of recreation
c. condition of noise situation
d. chance of non-ionizing radiation
e. chance of radio activity
f. condition of waste-collection and treatment facilities
g. condition of affected population |

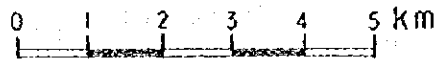
7. Socio-Economic Conditions

- a. employment condition
- b. impact of well-being and quality of life
- c. chance of decline of the quality and quantity of the recreational opportunities

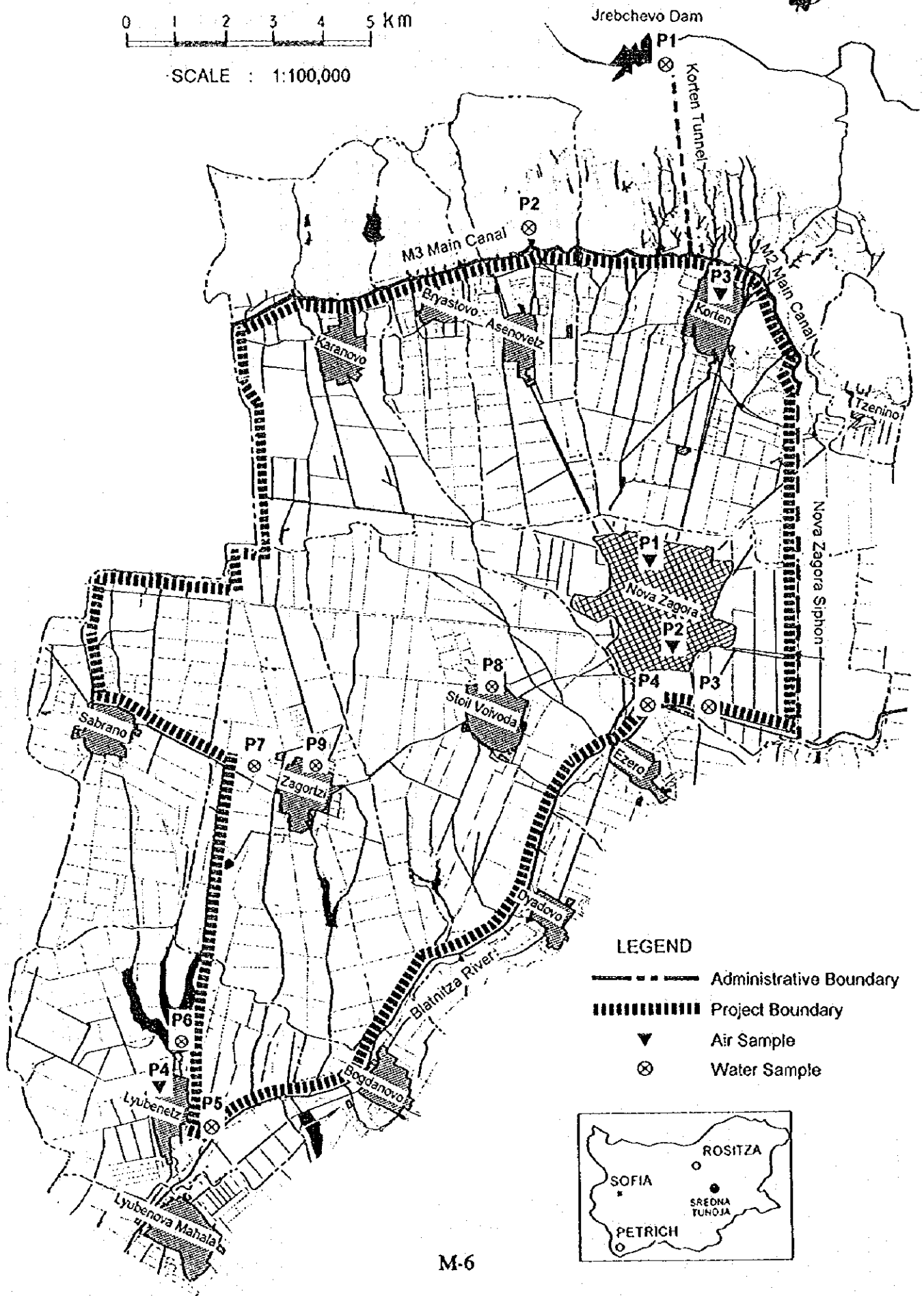
8. Cultural Heritage

- a. impact on historic, archaeological or architectural monuments
- b. impact on the current use of land and resources for traditional purposes

Figure M-1 Location Map for Air and Water Samples

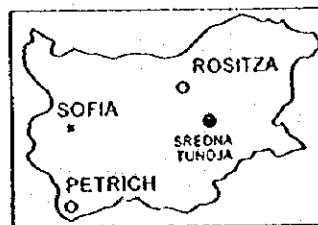


SCALE : 1:100,000



LEGEND

- Administrative Boundary
- ▬▬▬▬▬▬ Project Boundary
- ▼ Air Sample
- ⊗ Water Sample



Historical Important Places in Petrich Area

<u>Village Name</u>	<u>Main Items Discovered</u>
1. Parvomay	remains of an Antiquity age fortress
2. Petrich Town	village remains from late Antiquity and the middle ages
3. Ragdak	Antiquity village remains
4. Muletarovo	remains of 2 antiquity towns
5. Kavrakirovo	no remains
6. Mihnevo	no remains
7. Karnalovo	no remains
8. Starchevo	no remains
9. Mitinovo	Antiquity vill mound, Mid age village, antiquity necropolis
10. Drangovo	Middle age village mound
11. Topolnitza	Prehistoric vill mound, Antiquity necropolis
12. Kulata	Middle age church
13. Spanchevo	no remains
14. Pripechene	no remains
15. Kapatovo	Antiquity vill mound and necropolis
16. Kromidovo	no remains
17. Novokonopladi	no remains

Historical Important Places in Rositsa Area

1. North Main Canal Block

<u>Village Name</u>	<u>Main Items Discovered</u>
1. Alekovo	no remains
2. Gorna Studena	remains of a mid age village
3. Varzulitsa	no information
4. Maslarevo	no remains
5. Karaisen	remains of Roman Tombs
6. Batak	no remains
7. Obedinenie	remains of Roman Vill, in areas 'Trite Mogili' & 'Selishte'
8. Dolna Lipnitsa	no remains
9. Gorna Lipnitsa	no information
10. Patresh	remains of Roman Vill, in areas 'Manastira' & 'Aker'
11. Butovo	Roman village with Necropolis
12. Nedan	no remains
13. Varana	no information
14. Gradiste	remains of middle age Fortress
15. Pavlikeni	remains of Thracian Villages
16. Varbovka	remains of prehistoric, Thracian and middle age village
17. Dimcha	no information
18. Suhindol	Romans remains in 'Seltse', 'Leskovetz', Mid age Fortress in Manastira
19. Krasno gradiste	no information

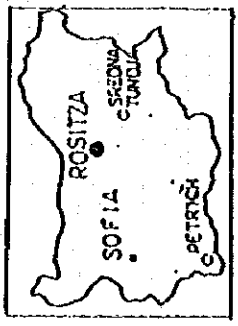
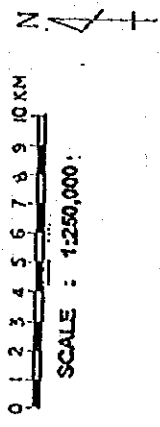
2. Nkyupsky Canal Block

<u>Village Name</u>	<u>Main Items Discovered</u>
1. Byala cherkva	remains of Thracian, Roman and middle ages villages
2. Lesicheri	Antiquity vill. in 'Salpa', Thracian remains in 'Viraneto'
3. Dichin	no information
4. Vodolei	no information
5. Nikyup	presence of a Roman city called 'Nikopolis ad Istrum' 3km southeast of the village
6. Gradina	no information
7. Krusheto	no remains
8. Kutsina	no remains
9. Polski Senovetz	Antiquity village, burial mound and Roman remains on 1km southeast in the 'Katchulya'
10. Sashevo	a collection of middle age coins found nearby
11. Radanovo	Thracian, Roman and Pre-historic villages on 2km NW and Antiquity and middle age villages on 2km SW
12. Polski Tambesh	Prehistoric village wit a necropolis on 1km north
13. Karantsi	4 Roman mounds and a village

3. Lower Right Canal Block

1. Stambolovo no remains
2. Mihaltsi remains of an Antiquity village in the 'Sayar' area
3. Musina Antiquity village in 'Manastira' and middle age fortress
in 'Voditzata'
4. Rusalya Roman remains on 2km Eeast and 1km South
5. Resen Prehistoric, Antiquity and Middle ages remains
6. Holnitsa no information
7. Samovodene remains of prehistoric village in the NW part
8. Parvomaitsi remains of middle ages fortress, church, road
and village on 2km SE of the present village
9. Polikraiste remains of Antiquity village and necropolis 3km NE
10. Pravda no remains
11. Dolna Oryahavitsa remains of Thracian, Roman villages and a necropolis
12. Varbitza no remains
13. Yantra no information

ROSITSA STUDY AREA



--- Irrigation Scheme Boundary
- - - Municipality Boundary

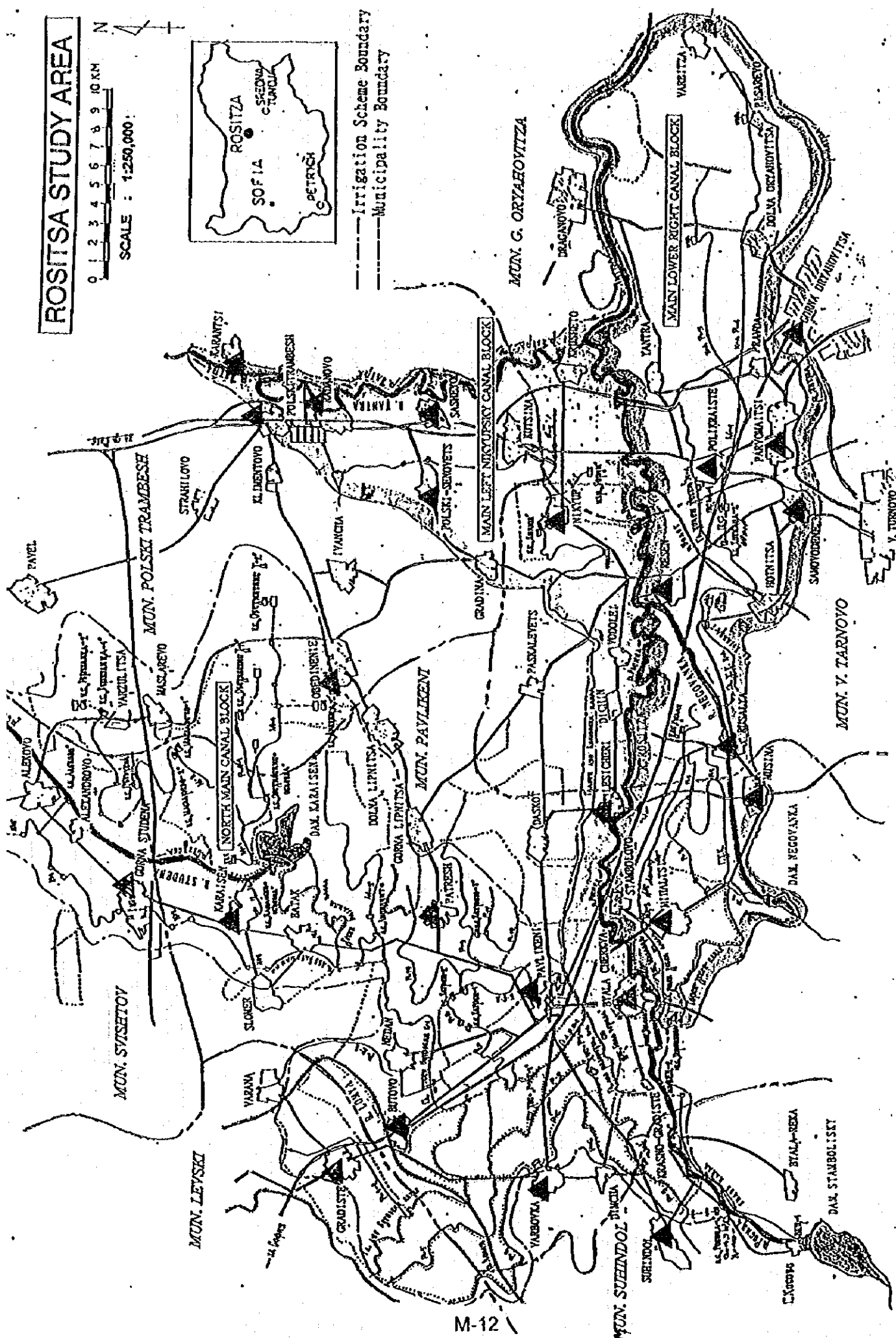


Figure M-3 Location of Important Cultural Heritage

Historical Important Places in Nova Zagora Area

Nova Zagora M3 Canal Pilot Project Area

<u>Village Name</u>	<u>Main Items Discovered</u>
1. Nova Zagora	Prehistorical settlements
2. Korten	Village mound with earliest traces of human life
3. Karanovo life	Village mound with earliest traces of human (tomb containing glass and metal containers, earthenware, bronze lamps, chandeliers, coins etc.;
4. Bryastovo	no remains;
5. Assenovetz	village mound with earliest traces of human life;
6. Stoil Voivoda	village mound with earliest traces of human life;
7. Zagortzi	village mound with earliest traces of human life;
8. Sabrano	village mound with earliest traces of human life;
9. Bogdanovo	no remains;
10. Luybenetz	village mound with earliest traces of human life;

NOVA ZAGORA M-3 CANAL PILOT PROJECT AREA MAP



0 1 2 3 4 5 km

SCALE : 1:100,000

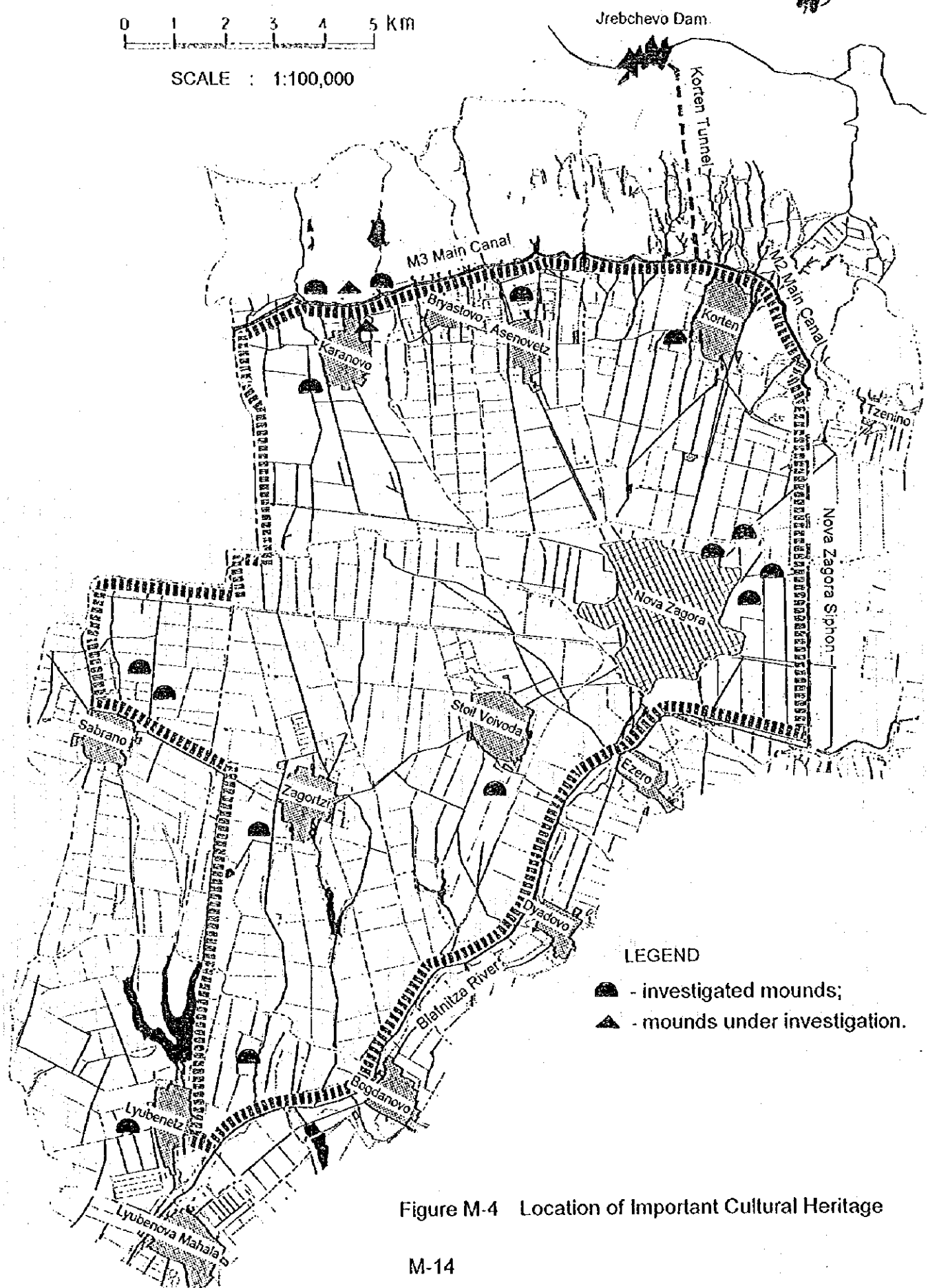


Figure M-4 Location of Important Cultural Heritage