Table 3.2.5-A1 Characteristics of Soil Units in the Study Area (1 of 4)

SU	Classes	Symbol	Soil type and subtype	Mother material	Soil texture	Drainage	Soil depth	Gravel	pH	Elect.cond.	Total cationic exchange capacity	Degree of base saturation	Organic matter humus	N Total	P	K	Slope	Ground water depth	Area	
							Cm	%	H2O	ECe	Tmc	V%	%	%	ppm	ppm	%	m	ha	%
1	2	3	4	5	6	7	8	9	10	11	12		14	15	16	17	18	19	20	21
		Sub-table I	IRRIGATION STUDY AREA																	
1	Mollisols	Czti	Typic Chernozem	alluvial deposit	L/L	Good	125	-	N	-	L	MB	L	M	L	L	<2	>5	34.1	0.1
2		Ccti	Typic Chernozem with cambic B horizon (on loess deposit and loam texture)	loess (and or alluv.dep.)	L/L,SL/SL	Good	70-115	-	N	N	L	MB	L	L	M	M	<2	>5	8,984.9	33.1
3		Ccti	Typic Chernozem with cambic B horizon,(on alluvial deposit with clay-loamy texture)	alluv.dep	L-CL/L-CL	Good	90	-	Ac	-	M	MB	M	L	L	H	<2	>5	1,011.9	3.7
4		Ccti/e	Typic Chernozem with cambic B horizon slightly eroded	loess dep.	L/L	Excessively	80	-	Ac	-	-	-	L	-	-	-	2-5	>5	99.7	0.4
5		Ccti	Typic Chernozem with cambic B horizon moderately eroded	loess dep.	L/L	Excessivelly	100	-	Ac	-	L	EB	L	VL	-	-	5-10	>5	410.3	1.5
6		Ccti	Typic Chernozem with cambic B horizon slightly to very gravelly	alluv.dep.	L/L	Excessively	76-100	6-50	AC	-	-	-	L	-	-	-	<2	>5	1,150.1	4.2
7		Ccti	Typic Chernozem with cambic B horizon, gravelly to very gravelly, gravelly substratum	alluv.dep.	CL/CL	Excessively	51-75	26-50	AC	-	-	-	L	-	-	-	<2	>5	353.3	1.3
8		Ccti	Typic chernozem with cambic B horizon, gravelly to extremely gravelly, gravelly substratum	alluv.dep.	SL-L/SL-L	Good	54-80	26-75	AC	N	L	MB	M	L	VL	L	<2	>5	1,105.9	4.1
9		Ccvs	Vertic Cherenozem with cambic B horizon and vertisols	caly+expansive soil	CL/CL	Good	100	-	AC	-	-	-	L	-	-	-	<2	>5	245.0	0.9
10		Ccvs	Vertic Chernozem with cambic B horizon	expansive soil	CL/CL	Good	90-115	-	AC	N	M	MB	L	M	L	M	<2	>5	137.8	0.5
11		Ccgz	Gley Chernozem with cambic B horizon	alluv.dep.	CL/L	Moderately	100	-	FAc	N	M	MB	M	M	M	H	<2	>5	160.0	0.6
12		Clti/e	Typic Chernozem with argillic B horizon slightly eroded	loess dep.	L/CL	Good-Exc.	90	-	Ac	-	-	-	L	-	-	-	2-5	>5	46.o	0.2
13		CNcc	Grey Soils with cambic B horizon	loess dep.	L/L	Good	90	-	Ac	-	-	MB	L	VL	M	M	<2	>5	243.3	0.9
14		CNti	Typic Grey Soils	loess (and or alluv.dep.)	L/CL	Good	80-140	-	Ac	-	L	MB	L	L	M	H	<2	>5	2,678.5	9.8
15		CNti/e	Typic Grey Soils slightly eroded	loess dep.	L-CL/CL	Good	110-130	-	Ac	-	M	MB	L	L	M	M	2-5	>5	2,238.0	8.6
16		CN/e	Typic Grey Soils moderately eroded	loess dep.	L/L-CL	Excessivelly	90	-	N	-	-	-	L	L	H	M	5-10	>5	130.6	0.5
18	Argilluvic soils	BDmo	Brown Soils with mollic B horizon and argillic B horizon	loess dep.	L/CL	Good	80-135	-	Ac	-	M	MB	L	L	L	M	<2	>5	80.2	0.3
19		BDpz	Brown Soils with argillic B Horizon and surface watwr gley	loess dep.	L/CL	Good	120	-	Ac	-	-	-	L	-	-	-	2-5	>5	93.3	0.3
21		BDti/e	Brown Soils with argillic B horizon, slightly eroded	loess dep.	L/CL	Good	90-125	-	Ac	N	L	MB	L	L	L	M	2-5	>5	1,330.8	4.9

Table 3.2.5-A1 Characteristics of Soil Units in the Study Area (2 of 4)

1	2	3	4	5	6	7	8	9	10	11	12		14	15	16	17	18	19	20	21
22		BDti/e	Brown Soils with argillic B horizon, moderately eroded	loess dep.	L/CL	Good-Ex.	90-116	-	Ac	-	M	MB	L	L	-	-	5-10	>5	502.5	1.8
24		BD/e	Brown Soils with argillic B horizon, and Gullied land	loess dep.	L/CL	Excessively	70-90	-	AL	-	-	MB	L	-	-	-	5-10	>5	6.8	0.0
30	Hydromorphic soils	LCti	Eutric Humic Gley Soils	alluv.dep.	CL/CL	Imperfectly	130	-	AL	N	-	MB	M	-	-	-	<2	0.5-1	97.5	0.4
31		GCti	Eutric Low Humic Gley Soils	alluv.dep.	CL/CL	Imperfectly	80-130	-	AL	-	-	EB	M	-	-	-	<2	1	274.8	1.0
32		GCml	Boggy Gley Soils	alluv.dep.	L-CL/L-CL	Very slighty	120	-	N	-	-	EB	M	-	-	-	<2	0.5	46.6	0.2
33	Vertisols	VSti	Typic Vertisols	expansive soil	LC/LC	Good	100	-	N	N	H	EB	M	M	L	H	<2	>5	555.0	2.0
34	Undeveloped soils	RSti	Typic Regosols	loess dep.	L/L	Excessively	25	-	AL	-	-	EB	VL	M	M	H	>20	>5	240.1	0.9
36		RSti	Typic Regosols and Gullied land	loess dep.	L/SL	Excessively	15	-	AL	-	-	EB	VL	-	-	-	>20	>5	5.2	0.0
38		SAti	Typic Alluvial Soils	alluv.dep.	SL-L/SL-L	Good	30-50	-	AL	N	-	EB	M	-	-	-	<2	>5	1,011.9	3.7
39		SAti	Typic Alluvial Soils	alluv.dep.	L-CL/CL	Good	40-50	-	AL	-	-	EB	L	-	-	-	<2	>5	331.8	1.2
40		SAti	Typic Alluvial Soils, seldom flooded	alluv.dep.	LS-L/LS-L	Good	28-50	-	AL	-	L	EB	VL	VL	M	VL	<2	>5	452.7	1.7
41		SAti	Typic Alluvial Soils, phreatic phase	alluv.dep.	SL/L-CL	Good	76-90	-	Ac	N	-	MB	M	L	M	H	<2	3-5	266.2	0.9
42		SAgz	Gley Alluvial Soils	alluv.dep.	SL-L/CL	Moderately	70-90	-	Al	N	-	EB	L	L	H	VH	<2	2-3	911.0	3.4
43		SAgz	Gley Alluvial Soils	alluv.dep.	L-CL/LS-SL	Moderately	70-90	-	AL	N	-	EB	M	M	-	-	<2	2-3	180.1	0.7
44		SAti	Typic Aluvial Soils, slightly, to moderately gravelly, gravelly substratum	alluv.dep.	SL-L/LS-SL	Excessively	45-50	6-50	AL	-	-	EB	M	L	H	H	<2	>5	374.7	1.4
45		SAti	Typic Alluvial Soils,slightly to moderately gravelly, gravelly substratum	alluv.dep.	SL-L/LS-SL	Excessively	50-60	6-25	AL	-	L	EB	L	VL	H	M	<2	3	140.1	0.5
46		SAli	Alluvial Soils very to extremely gravelly, gravelly substratum	alluv.dep.	L/L	Excessively	25	51-75	AL	-	-	EB	L	L	-	-	<2	2-3	706.4	2.6
47		SAmo	Mollic Alluvial Soils	alluv.dep.	L/L	Excessively	50-60	-	AL	-	-	EB	L	-	-	-	<2	3-5	204.4	0.8
48		AAls	Alluvial Soils extremelly, gravelly (rubble land)	alluv.dep.	LS/LS	Excessively	25	51-75	AL	-	-	MB	VL	VL	-	-	<2	>5	170.5	0.6
50		AAti	Typic Alluvial Protosol, slightly to moderately gravelly seldom flooded	alluv.dep.	LS/LS	Excessively	<10	6-25	AL	-	-	EB	VL	-	-	-	<2	3-5	78.8	0.3
		Sub-total I IRRIGATION STUDY AREA																	**27,191.0**	**100.0**

Table 3.2.5-A1 Characteristics of Soil Units in the Study Area (3 of 4)

SU	Classes	Symbol	Soil type and subtype	Mother material	Soil texture	Drainage	Soil depth	Gravel	pH	Elect.cond.	Total cationic exchange capacity	Degree of base saturation	Organic matter humus	N Total	P	K	Slope	Ground water depth	Area	
							Cm	%	H2O	ECe	Tmc	V%	%	%	ppm	ppm	%	m	ha	%
1	2	3	4	5	6	7	8	9	10	11	12		14	15	16	17	18	19	20.0	21.0
		Sub-table II SOIL CONSERVATION STUDY AREA																		
2		Ccti	Typic Chernozem with cambic B horizon (on loess deposit and loam texture)	loess (and or alluv.dep.)	L/L,SL/SL	Good	70-115	-	N	N	L	MB	L	L	M	M	<2	>5	338.5	2.0
4		Ccti/e	Typic Chernozem with cambic B horizon slightly eroded	loess dep.	L/L	Excessively	80	-	Ac	-	-	-	L	-	-	-	2-5	>5	120.4	0.7
5		Ccti	Typic Chernozem with cambic B horizon moderately eroded	loess dep.	L/L	Excessivelly	100	-	Ac	-	L	EB	L	VL	-	-	5-10	>5	5.6	0.0
12		Clti/e	Typic Chernozem with argillic B horizon slightly eroded	loess dep.	L/CL	Good-Exc.	90	-	Ac	-	-	-	L	-	-	-	2-5	>5	107.1	0.6
14		CNti	Typic Grey Soils	loess (and or alluv.dep.)	L/CL	Good	80-140	-	Ac	-	L	MB	L	L	M	H	<2	>5	655.7	3.9
15		CNti/e	Typic Grey Soils slightly eroded	loess dep.	L-CL/CL	Good	110-130	-	Ac	-	M	MB	L	L	M	M	2-5	>5	1,103.8	6.5
16		CN/e	Typic Grey Soils moderately eroded	loess dep.	L/L-CL	Excessivelly	90	-	N	-	-	-	L	L	H	M	5-10	>5	503.3	2.9
17		CN/e	Typic Grey Soils, moderately eroded sheet and gully erosion	loess dep.	L/CL	Excessivelly	85	-	N	-	-	-	L	-	-	-	5-10	>5	160.9	0.9
18	Argilluvic soils	BDmo	Brown Soils with mollic B horizon and argillic B horizon	loess dep.	L/CL	Good	80-135	-	Ac	-	M	MB	L	L	L	M	<2	>5	302.2	1.8
19		BDpz	Brown Soils with argillic B Horizon and surface watwr gley	loess dep.	L/CL	Good	120	-	Ac	-	-	-	L	-	-	-	2-5	>5	444.1	2.6
20		BDpz/e	Brown Soils with argillic B horizon and surface water gley, slightly eroded	loess dep.	L/CL	Moderately	105-130	-	Ac	-	L	MB	L	L	VL	L	<2	>5	1,454.4	8.6
21		BDti/e	Brown Soils with argillic B horizon, slightly eroded	loess dep.	L/CL	Good	90-125	-	Ac	N	L	MB	L	L	L	M	2-5	>5	2,168.2	12.8
22		BDti/e	Brown Soils with argillic B horizon, moderately eroded	loess dep.	L/CL	Good-Ex.	90-116	-	Ac	-	M	MB	L	L	-	-	5-10	>5	2,019.3	12.1
23		BD/e	Brown Soils with argillic B horizon slightly to moderately eroded (sheet and gully horizon)	loess dep.	L/CL	Excessively	80-135	-	FAc	-	L	MB	L	VL	L	H	5-10	>5	1,023.8	6.1
24		BD/e	Brown Soils with argillic B horizon, and Gullied land	loess dep.	L/CL	Excessively	70-90	-	AL	-	-	MB	L	-	-	-	5-10	>5	399.0	2.4
25		BD/e	Brown Soils with argillic B horizon severely eroded	loess dep.	CL/CL	Excessively	60-80	-	AL	-	-	MB	L	-	-	-	10-15	>5	101.9	0.6
26		BPpz	Bleached Brown Soils with argillic B horizon and surface water gley	expansive dep.	L/CL	Moderately	105-120	-	FAc	-	-	MB	L	-	-	-	<2	>5	107.1	0.6
27		BPpz/e	Bleached Brown Soils with argillic B horizon and surface water glay, slightly eroded	loam dep.	L/CL	Excessively	100-110	-	FAc	-	-	MB	L	-	-	-	2-5	>5	399.2	2.4

Table 3.2.5-A1 Characteristics of Soil Units in the Study Area (4 of 4)

1	2	3	4	5	6	7	8	9	10	11	12		14	15	16	17	18	19	20.0	21.0
28		BP/e	Brown Soils with argillic B horizon, moderately-severely eroded	loam dep.	L/CL	Excessively	80-90	-	Ac	-	-	MB	L	-	-	-	5-10	>5	472.4	2.8
29	Soils with cambic B horizon, (other then mollisols)	BMti	Brown Soils with cambic B horizon	alluv.dep.	L/L	Good	110	-	N	-	-	MB	L	-	-	-	<2	>5	33.7	0.2
33	Vertisols	VSti	Typic Vertisols	expansive soil	LC/LC	Good	100	-	N	N	H	EB	M	M	L	H	<2	>5	35.1	0.2
34	Undeveloped soils	RSti	Typic Regosols	loess dep.	L/L	Excessively	25	-	AL	-	-	EB	VL	M	M	H	>20	>5	839.0	4.9
35		RSti	Typic Regosols	loam dep.	SL/SL-LS	Excessively	20	-	AL	-	-	EB	L	-	-	-	>20	>5	366.4	2.2
36		RSti	Typic Regosols and Gullied land	loess dep.	L/SL	Excessively	15	-	AL	-	-	EB	VL	-	-	-	>20	>5	1,073.3	6.6
37		ERti	Severely Eroded Soils	loess dep.	L/L-CL	Excessively	12-15	-	AL	-	-	EB	VL	-	-	-	15-20	>5	324.8	1.9
38		SAti	Typic Alluvial Soils	alluv.dep.	SL-L/SL-L	Good	30-50	-	AL	N	-	EB	M	-	-	-	<2	>5	353.9	2.1
39		SAti	Typic Alluvial Soils	alluv.dep.	L-CL/CL	Good	40-50	-	AL	-	-	EB	L	-	-	-	<2	>5	22.5	0.1
40		SAti	Typic Alluvial Soils, seldom flooded	alluv.dep.	LS-L/LS-L	Good	28-50	-	AL	-	L	EB	VL	VL	M	VL	<2	>5	1,006.8	6.0
43		SAgz	Gley Alluvial Soils	alluv.dep.	L-CL/LS-SL	Moderately	70-90	-	AL	N	-	EB	M	M	-	-	<2	2-3	309.7	1.8
44		SAti	Typic Aluvial Soils, slightly, to moderately gravelly, gravelly substratum	alluv.dep.	SL-L/LS-SL	Excessively	45-50	6-50	AL	-	-	EB	M	L	H	H	<2	>5	255.9	1.5
45		SAti	Typic Alluvial Soils,slightly to moderately gravelly, gravelly substratum	alluv.dep.	SL-L/LS-SL	Excessively	50-60	6-25	AL	-	L	EB	L	VL	H	M	<2	3	192.0	1.1
48		AAls	Alluvial Soils extremelly, gravelly (rubble land)	alluv.dep.	LS/LS	Excessively	25	51-75	AL	-	-	MB	VL	VL	-	-	<2	>5	151.2	0.9
49		AAgz	Gley Alluvial protosol often flooded	alluv.dep.	LS/S	Moderately	<10	-	AL	-	-	EB	VL	-	-	-	<2	2-3	39.8	0.2
		Sub-total II	**SOIL CONSERVATION STUDY AREA**																**16,891.0**	**100.0**
				TOTAL AGRICULTURAL LAND OF STUDY AREA															**44,082.0**	

Explanation for the Table 3.2.5-A1 Characteristics of Soil Units in the Study Area

Soil texture:

- Diameter : Sand = 2 ~ 0.02 mm, Slit = 0.002 ~ 0.002 mm, Clay<0.002 mm
- Abbribiation : Sand = S, Loamy Sand = LS, Sandy Loam = SL, Loam = L
  Clay Loam = CL, Loamy Clay = LC, Clay = C

pH: (range)

FAC = 5.1~ 5.8; Ac = 5.9 ~ 6.8; N =6.9 ~ 7.2; AL = 7.3 ~ 8.4; FL+ = 8.5 ~ 9; MFAL >9

Electroconductivity (ECe):

ECe 0 ~ 1.7 mmho/cm = No saline = N

Total N (%)

VL ~ Very low < 0.100; L ~ Low = 0.100 ~ 0.140; M ~ Moderate = 0.141~ 0.270
H ~ High = 0.271 ~ 0.600; VH ~ Very high > 0.600

Available P (ppm)

VL = 0 ~ 8; L = 9 ~18; M = 19 ~ 36; H= 37 ~ 72; VH >72

Available K (ppm)

VL = 41~ 65; L = 66 ~ 130; M = 131~ 200; H = 201~ 300; VH >300

Total cationic exchange capacity (Tme,% gr.soil)

VL = 6 ~ 10; L = 11~ 20; M = 21~ 35; H = 36 ~ 55

Degree of base saturation (V,%)

OM: oligomezobazic 40 ~ 70, MB: mezobazic 71~ 90, EB: eubazic 91~ 100

Organic matter (humus) by soil texture

	Soil Texture					
	S	LS	SL	L	CL	C
VL	0.3 ~ 0.5	0.5 ~ 0.8	0.6 ~ 1.1	0.7 ~ 1.3	0.9 ~ 1.5	1.1 ~ 2.0
L	0.6 ~ 1.0	0.9 ~ 1.7	1.2 ~ 2.2	1.4 ~ 3.0	1.6 ~ 3.5	2.1 ~ 5.0
M	1.1 ~ 2.0	1.8 ~ 4.0	2.2 ~ 5.5	3.1 ~ 6.5	3.6 ~ 8.0	5.1 ~ 10.0
H	2.1 ~ 5.0	4.1 ~ 7.0	5.6 ~ 8.5	6.6 ~ 10.5	8.1 ~ 12.5	10 ~ 1-16.0

Table 3.2.5 - A2 The Result of Investigation of Soil Salinity (Soil Sampled on July 1, 1994)

Sample No	Soil units No.	Soil units	Location	Land use	Electroconductivity in water extract 1:5 (mmho/cm)	Total salty content (mg% soil)	ECe in saturated extract (mmho)	Salinisation intensity
1	43	Gley Alluvial Soils	E.Ruginesti	maize	0.16	56	0.9	no saline
2	42	Gley Alluvial Soils	N.Domnesti	barley	0.156	53	0.9	no saline
3	42	Gley Alluvial Soils	W.Domnesti	pasture	0.127	45	0.7	no saline
4	41	Typic Alluvial Soils phreatic phase	S.Domnesti	maize	0.137	45	0.7	no saline
5	42	Gley Alluvial Soils	E.Pufesti	wheat	0.163	56	0.9	no saline
6	14	Typic Grey Soils	E.Paunesti	maize	0.078	30	0.5	no saline
7	14	Typic Grey Soils	S.Valeni	wheat	0.036	26	0.4	no saline
8	2	Typic Chernozem with Cambic B horizon	E.Unirea	maize	0.089	35	0.6	no saline
9	2	Typic Chernozem with Cambic B horizon	E.Odobesti	wheat	0.115	39	0.6	no saline
10	6	Typic Chernozem with cambic B horizon slightly to very gravelly, gravelly substratum	S.Ivanesti	pasture	0.061	26	0.4	no saline
11	6	Typic Chernozem with Cambic B horizon slightly to very gravelly, gravelly substratum	SE.Ivanesti	maize	0.077	31	0.5	no saline
12	33	Typic Vertisols	E.Odobesti	maize+bean	0.111	39	0.6	no saline
13	38	Typic Alluvial Soils	W.Batinesti	vegetables	0.164	57	1	no saline
14	10	Vertic Chernozem with Cambic B horizon	N.Batinesti	maize	0.1	38	0.6	no saline
15	38	Typic Alluvial Soils	N.Bizigheti	sun-flower	0.214	72	1.2	no saline
16	2	Typic Chernozem with Cambic B horizon	W.Marasesti	vineyard	0.175	60	1	no saline
17	2	Typic Chernozem with Cambic B horizon	SW.Haret	wheat	0.08	30	0.5	no saline
18	31	Eutric Low Hummic Grey Soils	N.Calimanesti	maize	0.178	60	1	no saline
19	14	Typic Grey Soils	W.Ciorani	wheat	0.111	39	0.6	no saline
20	21	Brown Soils with Argillic B horizon slightly eroded	E.Movilita	maize	0.12	41	0.7	no saline

Notes :

The salinity's limit:

ECe (in saturaded extract, at 25°C): = 1.7 mmhos/cm

EC 1 : 5 (in water extract, at 25° C) = 0.290 mmhos/cm

Total salty content (mineral reziduum) = 100 mg/100 g soil

$$\frac{\text{Total salty content} \times 1.7}{100}$$

ECe ≤ 1.7 mmhos/cm, and EC1:5 ≤ 0.290 mmhos/cm and total salty content ≤100 mg% g soil represents the suitable limit of saline soil.

(Source: The Methodology of the Elaboration of Soil's Reports, Norm number - 20A / 1986)

Table 3.2.5-A3 Hydrophysical Characteristics of Soils in the Study Area

Soil Type Texture	Profils	Depth (cm)	DA (g/cm3)	TP (%)	PA (%)	CO (%g)	CC (%g)	CU (%g)	CCD (%g)	Permeability (mm/hr)
Czti,CCti,CCgz,SAt,	30, 32, 36,	0-50	1.43	46.2	15.2	7.5	21.7	14.3	10.8	5
SAmo,SAgz,AAti.	113,121,122,	50 -100	1.48	46	13.8	7.8	21	13.1	9.5	10.7
LS(SL)-LL	131,132,133	100 -150	1.47	45.8	15.3	6.9	19.9	12.9	11.3	11.6
CNti,BDmo,BDti,	15, 22, 25, 42	0 - 50	1.43	46.7	14.9	8.7	22.5	13.7	11.7	5.4
BDpz,BDmo-pz,BPti	46, 49, 55	50 -100	1.5	44.4	12.2	10	22	11.9	8.9	4.2
BPpz,LCti,SAt,SAmo,		100 -150	1.47	45.4	13.7	8.9	21.5	11.6	10	3.35
SAgz,AAti.										
LL-CL(LC)										
CCvs,Vsti.	31, 63, 128	0 - 50	1.34	49	13.6	14.4	26.6	12.2	10.5	4.3
CL-LC(CC)		50 -100	1.37	48.9	12.6	16.2	26.7	10.5	9.3	4.2
		100 -150	1.44	46.7	9.7	14.5	25.8	11.2	6.9	3.2
AAti,AAls,SAti,SALs		0-50	1.4	49	20	6	20	14	14.4	undeterm.
CCti (with gravel)		50-100	1.5	44.5	20.5	4	16	12	13.6	undeterm.
LS-LL										

Source : ICPA, 1986

Notes : DA = Bulk density - g/cm3
TP = Total porosity in %
PA = Aeration porosity in %
CO = Ultimate wilting point in %
CC = Field capacity in %
CU = Available moisture holding capacity in %
CCD = Specific yield in %

Table 3.2.5-A4 Correspondence between Romanian and American Soil Classifications

Soil unit number	Symbol	Romanian soil classification		American soil classification
		Romanian	English	
1	2		3	4
		MOLISOLURI	**MOLLISOLS**	**MOLLISOLS**
1	Crti	Cernoziom tipic	Typic Chernozem	Entic Haplustolls
2	Ccti	Cernoziom cambic tipic (pe depozite fluviatile, textura LL)	Typic Chernozem with cambic B horizon (on loess deposit and loam texture)	Typic Haplustolls
3	Ccti	Cernoziomcambic tipic (pe depozite fluviatile, textura LA)	Typic Chernozem with cambic B horizon,(on alluvial deposit with clay-loamy texture	Typic Haplustolls
4	Ccti/e	Cernoziomcambic tipic slab erodat	Typic Chernozem with cambic B horizon slightly eroded	Typic Haplustolls, 2 to 5 percent slopes, slightly eroded
5	Ccti	Cernoziom cambic tipic moderat erodat	Typic Chernozem with cambic B horizon moderately eroded	Typic Haplustolls, 5 to 10 percent slopes, moderately eroded
6	Ccti	Cernoziom cambic tipic slab moderat scheletic	Typic Chernozem with cambic B horizon slightly to very gravelly	Typic Haplustolls, slightly to very gravelly (6 to 50 percent pebbles in the surface layer)
7	Ccti	Cernoziom cambic tipic moderat scheletic	Typic Chernozem with cambic B horizon, gravelly to very gravelly, gravelly substratum	Typic Haplustolls, gravelly to very gravelly (26 to 50 percent pebbles in the surface layer gravelly substratum
8	Ccti	Cernoziom cambic tipic moderat, puternic scheletic	Typic chernozem with cambic B horizon, gravelly to extremelly gravelly, gravelly	Typic Haplustolls, gravelly to extremely gravelly (26 to 75 percent pebbles in the surface layer), gravelly
9	Ccvs	Cernoziom cambic vertic+vertisol tipic	Vertic Chernozem with cambic B horizon and vertisols	Vertic Haplustolls and Typic Haplusterts
10	Ccvs	Cernoziom cambic vertic	Vertic Chernozem with cambic B horizon	Vertic Haplustolls
11	Cegz	Cernoziom cambic gleizat	Gley Chernozem with cambic B horizon	Endooxyaquic Haplustolls, 2 to 3 m deep water table
12	Clti/e	Cernoziom argilo iluvial tipic slab erodat	Typic Chernozem with argillic B horizon slightly eroded	Typic Argiustolls, 2 to 5 percent slopes, slightly eroded
13	CNcc	Sol cenusiu cambic	Grey Soils with cambic B horizon	Typic Haplustolls
14	CNti	Sol cenusiu tipic	Typic Grey Soils	Boralfic Argiustolls
15	CNti/e	Sol cenusiu tipic slab erodat	Typic Grey Soils slightly eroded	Boralfic Argiustolls, 2 to 5 percent slopes, slightly eroded
16	CN/e	Sol cenusiu moderat erodat	Typic Grey Soils moderately eroded	Boralfic Argiustolls, 5 to 10 percent slopes, moderately eroded
17	CN/e	Sol cenusiu moderat erodat cu eroziune in adincime	Typic Grey Soils, moderately eroded sheet and gully erosion	Boralfic Argiustolls, 5 to 10 percent slopes, moderately eroded (sheet and gully erosion)
		ARGILUVISOLURI	**ARGILLUVIC SOILS**	**ALFISOLS**
18	BDmo	Brun argiloiluvial mollic	Brown Soils with mollic B horizon and argillic B horizon	Typic Argiustolls
19	BDpz	Sol brun argiloiluvial pseudogleizat	Brown Soils with argillic B Horizon and surface water gley	Epioxyaquic Haplustalfs
20	BDpz/e	Sol brun argiloiluvial pseudogleizat slab erodat	Brown Soils with argillic B horizon and surface water gley, slightly eroded	Epioxyaquic Haplustalfs, 2 to 5 percent slopes, slightly eroded
21	BDti/e	Sol brun argiloiluvial slab erodat	Brown Soils with argillic B horizon, slightly eroded	Typic Haplustalfs, 2 to 5 percent,slopes, slightly eroded
22	BDti/e	Sol brun argiloiluvial moderat erodat	Brown Soils with argillic B horizon moderately eroded	Typic Haplustalfs, 5 to 10 percent slopes, moderately eroded
23	BDti/e	Sol brun argiloiluvial slab moderat erodat, cu eroziune de adincime	Brown Soils with argillic B horizon, slightly to moderately eroded(sheet and gully erosion)	Typic Haplustalfs, 5 to 10 percent slopes, slightly to moderately eroded (sheet-gully erosion)
24	BDti/e	Sol brun argiloiluvial puternic erodat cu eroziune de adincime	Brown Soils with argillic B horizon, and Gullied land	Typic Ustochrepts and Gullied land, 5 to 10 percent slopes
25	BD/e	Sol brun argiloiluvial puternic-f.puternic erodat	Brown Soils with argillic B horizon severely eroded	Typic Ustochrepts, 10 to 15 percent slopes (sheet and rill erosion)
26	BPpz	Sol brun luvic pseudogleizat	Bleached Brown Soils with argillic B horizon and surface water gley	Epioxyaquic Haplustalfs
27	BPpz/e	Sol brun luvic pseudogleizat slab erodat	Bleached Brown Soils with argillic B horizon and surface water glay, slightly eroded	Epioxyaquic Haplustalfs, 2 to 5 percent slopes, slightly eroded
28	BP/e	Sol brun luvic moderat-puternic erodat	Brown Soils with argillic B horizon, moderately-severely eroded	Typic Haplustalfs, moderatey eroded and Typic Ustochrepts, 5 to 10 percent slopes
		CAMBISOLURI	**SOILS WITH CAMBIC B HORIZON, OTHERS THAN MOLLISOLS**	
29	BMti	Sol brun eu-mezobazic tipic	Brown Soils with cambic B horizon	Fluventic Ustochrepts
		SOLURI HIDROMORFE	**HYDROMORPHIC SOILS**	**INCEPTISOLS**
30	LCti	Lacoviste tipica	Eutric Humic Gley Soils	Fluvaquentic Endoaquolls, 0,5 to 1 m deep water table
31	GCti	Sol gleic tipic	Eutric Low Humic Gley Soils	Aeric Endoaqupts, 0,5 to 1 m deep water table
32	GCmi	Sol gleic periodic inmlastinit	Boggy Gley Soils	Typic Endoaquepts, to < 0,5 m deep water table
		VERTISOLURI	**VERTISOLS**	**VERTISOLS**
33	VSti	Vertisoluri tipice	Typic Vertisols	Typic Haplusterts
		SOLURI NEEVOLUATE	**UNDEVELOPED SOILS**	**EUTISOLS**
34	RSti	Regosol tipic (sol f.puternic erodat), textura L	Typic Rgosols	Typic Ustorthents, >20 percent slopes
35	RSti	Regosol tipic, pe depozite lutoase, textura LN	Typic Regosols	Typic Ustorthents and Ustochrepts, >20 percent slopes
36	RSti	Regosol tipic, sol f. puternic erodat, cu eroziune de adincime	Typic Regosols and Gullied Land	Typic Ustorthents, Typic Ustorthents and Gullied Land, >20 percent slopes
37	ERti	Erodisol tipic (sol puternic-erodat)	Severely Eroded Soils	Typic Ustorthents, 15-20 percent slopes
38	SAti	Sol aluvial tipic text. LN	Typic Alluvial Soils	Typic Ustifluvents
39	SAti	Sol aluvial tipic text. LA	Typic Alluvial Soils	Typic Ustifluvents
40	SAti	Sol aluvial rar inundabil	Typic Alluvial Soils, seldom flooded	Typic Ustifluvents, seldom flooded
41	SAti	Sol aluvial influentat freatic	Typic Alluvial Soils, phreatic phase	Typic Ustifluvents, 3 to 5m deep water table
42	SAgz	Sol aluvial gleizat text.LN	Gley Alluvial Soils	Endooxyaquic Ustifluvents, 2 to 3 m deep water table
43	SAgz	Sol aluvial gleizat text. LA	Gley Alluvial Soils	Endooxyaquic Ustifluvents, 2 to 3 m deep water table
44	SAti	Sol aluvial tipic sol moderat scheletic	Typic Alluvial Soils, slightly, to moderately gravelly, gravelly substratum	Typic Ustifluvents, slightly to very gravelly (6 to 5% percent pebbles in the surface layer), gravelly substratum
45	SAti	Sol aluvial tipic slab scheletic	Typic Alluvial Soils,slightly gravelly, gravelly substratum	Typic Ustifluvents, slightly to moderately gravelly (6 to 25 percent pebbles in the surface layer), gravelly substratum
46	SAli	Sol aluvial litic (puternic scheletic)	Alluvial Soils very to extremely grovelly, grovelly substratum	Typic Ustifluvents, very to extremely gravelly (51 to 75 percent pebbles) gravelly substratum
47	SAmo	Sol aluvial mollic	Mollic Alluvial Soils	Mollic Ustifluvents
48	AAls	Protosol aluvial litic (puternic scheletic)	Alluvial Soils extremely gravelly (rubble land)	Rubble land
49	AAgz	Protosol aluvial gleizat frecvent inundabil	Gley Alluvial Protosol, often flooded	Endooxyaquic Ustifluvents, 2 to 3 m deep water table, often fooded
50	AAti	Protosol tipic slab scheletic rar inundabil	Typic Alluvial Protosol, slightly gravelly seldom flooded	Typic Ustifluvents, slightly to moderately gravelyy (6 to 25 percent pebbles), 3 to 5 m deep water table, seldom flooded

Source : ICPA Bucharest, 1994

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (1 of 7)

Profile no.	Soil unit	Type and subtype	Location	Depth (cm)	Granulometry Sand [%]	Silt [%]	Clay [%]	Texture	pH	Carbonates [%]	Humus [%]	N total [%]	P [ppm]	K [ppm]	Exchangeable bases [meq/100 g]	Exchangeable cations [meq/100 g] Ca	Mg	K	Na	Total cationic change capacity T - me	Degree of base saturation V %
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
6	2	Typic Chernozems with Cambic B horizon	Haret	0-20	39.30	26.60	34.10	C/L	6.40	-	2.33	0.133	3.50	165.50	19.82	-	-	-	-	-	85.7
				35-55	36.20	22.10	41.70	C/L	6.80	-	1.46	0.079	-	-	24.78	-	-	-	-	-	89.4
				60-70	42.30	24.20	33.50	C/L	6.50	-	0.99	-	-	-	23.70	-	-	-	-	-	88.8
				80-100	52.60	20.90	26.55	L/L	8.30	10.60	0.72	-	-	-	-	-	-	-	-	-	-
				105-125	49.00	22.50	28.50	L/L	8.30	9.60	-	-	-	-	-	-	-	-	-	-	-
12	20	Brown Soils with argillic B horizon and surface water gley, slightly eroded	E-NE Trotusani	0-12	43.80	34.90	21.30	L/L	6.80	-	3.41	0.213	6.10	141.70	17.58	15.75	1.25	0.46	0.12	19.85	88.6
				20-30	44.70	32.00	23.30	L/L	7.45	-	2.30	0.122	2.40	125.90	14.88	13.00	1.44	0.34	0.10	16.24	91.6
				38-54	46.90	26.60	26.50	L/L	6.45	-	0.25	-	-	-	17.67	15.75	1.44	0.31	0.17	19.88	88.9
				60-80	39.20	25.90	34.90	C/L	7.35	-	0.78	-	-	-	20.97	17.50	2.94	0.40	0.13	23.24	90.2
				100-120	40.10	27.70	32.20	C/L	6.10	-	-	-	-	-	18.50	15.75	2.24	0.36	0.15	21.74	85.1
15	14	Typic Grey Soils	W Domnesti	0-19	46.60	28.60	24.80	L/L	6.50	-	1.95	0.107	61.80	125.90	16.44	-	-	-	-	-	85.8
				28-36	46.10	28.20	25.70	L/L	6.60	-	1.69	0.086	23.00	110.00	16.06	-	-	-	-	-	85.7
				40-60	41.60	24.70	33.70	C/L	6.80	-	0.76	-	-	-	19.22	-	-	-	-	-	85.4
				78-85	44.90	25.00	30.10	L/L	6.90	-	0.49	-	-	-	18.82	-	-	-	-	-	89.0
				100-120	-	-	-	-	7.20	-	-	-	-	-	19.82	-	-	-	-	-	92.0
16	2	Typic Chernozems with Cambic B horizon	W Domnesti	0-19	47.90	26.90	25.20	L/L	5.90		2.25	0.151	10.70	167.60	13.98	11.75	1.68	0.43	0.12	17.84	78.4
				30-45	41.90	28.00	30.10	L/L	6.82	-	1.58	0.096	-	-	16.12	13.75	1.89	0.36	0.12	18.57	86.7
				50-60	47.30	26.10	26.60	L/L	7.20	-	1.08	-	-	-	15.65	13.75	1.44	0.34	0.12	16.75	93.4
				65-85	48.70	26.20	25.10	L/L	6.90	-	0.97	-	-	-	15.89	14.25	1.21	0.31	0.12	17.87	88.9
				90-105	52.30	25.10	22.60	L/L	8.30	10.00	-	-	-	-	16.14	15.73	-	0.24	0.17	-	100.0
				105-135	52.40	26.30	21.30	L/L	8.30	12.50	-	-	-	-	16.14	115.71	-	0.23	0.20	-	100.0
18	2	Typic Chernozems with Cambic B horizon	E Tifesti	0-15	48.40	24.30	27.30	L/L	6.70	-	2.12	0.118	11.80	141.70	19.02	-	-	-	-	-	87.4
				20-40	43.80	23.70	32.50	L/L	7.00	-	1.67	0.081	3.20	125.90	20.22	-	-	-	-	-	88.9
				50-60	45.60	23.40	31.00	L/L	7.00	-	1.05	-	-	-	20.42	-	-	-	-	-	88.6
				70-80	43.30	23.70	33.00	C/L	6.88	-	0.84	-	-	-	20.22	-	-	-	-	-	89.1
				120-130	50.40	24.90	24.70	-	8.35	12.20	-	-	-	-	-	-	-	-	-	-	-
21	2	Typic Chernozems with Cambic B horizon	WSW Marasesti	0-24	47.10	26.00	26.90	L/L	6.85	-	2.63	0.140	20.30	-	18.94	16.00	2.24	0.60	0.10	21.78	87.0
				30-40	45.60	25.70	28.70	L/L	6.90	-	2.30	0.106	22.10	-	20.03	17.50	2.05	0.36	0.12	22.53	88.9
				43-57	41.50	27.80	30.70	L/L	7.30	-	1.40	-	-	-	20.94	18.50	1.89	0.43	0.12	22.52	93.0
				60-80	43.30	25.10	31.60	L/L	7.45	-	1.09	-	-	-	18.21	16.50	1.81	0.38	0.12	20.53	93.0
				90-100	45.20	27.30	37.50	L/L	7.50	-	-	-	-	-	16.90	14.75	1.69	0.34	0.12	18.15	93.1
				118-125	52.00	24.70	23.30	L/L	8.40	13.20	-	-	-	-	16.73	16.30	-	0.23	0.20	-	100.0
22	21	Brown Soils with argillic B horizon, slightly eroded	N Diocheti	0-21	43.40	32.20	24.40	L/L	5.90	-	2.23	0.120	7.10	102.10	13.38	11.25	1.69	0.34	0.10	16.90	79.2
				21-43	42.30	29.70	28.00	L/L	6.45	-	1.72	0.080	-	-	14.87	12.50	1.89	0.36	0.12	18.00	82.6
				45-55	37.90	27.90	34.20	C/L	6.70	-	1.04	-	-	-	17.75	14.75	2.45	0.43	0.12	21.00	84.5
				55-70	36.30	27.80	35.90	C/L	6.75	-	0.81	-	-	-	18.82	15.75	2.51	0.43	0.12	21.83	86.2
				80-100	39.70	28.90	31.40	L/L	6.75	-	0.61	-	-	-	17.69	14.75	2.45	0.36	0.13	20.30	87.1
				105-125	41.80	29.00	29.20	L/L	6.90	-	-	-	-	-	17.29	14.75	2.05	0.36	0.13	19.50	88.7
25	14	Typic Grey Soils	W Pufesti	0-25	43.90	30.30	25.80	L/L	6.20	-	2.09	0.122	7.90	173.40	12.74	10.25	1.89	0.50	0.10	15.79	80.7
				26-35	43.80	29.80	26.40	L/L	6.40	-	1.71	0.094	4.00	141.70	13.17	10.75	1.89	0.43	0.10	16.29	80.8
				35-50	38.70	28.20	33.10	C/L	6.60	-	1.06	-	-	-	16.52	13.75	2.24	0.40	0.13	19.24	85.9
				51-65	37.30	28.10	34.60	C/L	6.80	-	0.88	-	-	-	18.48	15.75	2.18	0.40	0.15	21.20	87.2
				69-88	39.60	30.40	30.10	L/L	7.30	-	0.70	-	-	-	18.19	15.75	1.89	0.40	0.15	19.65	92.7
				90-120	42.60	28.90	28.50	L/L	7.20	-	-	-	-	-	15.59	13.75	1.44	0.28	0.12	16.89	92.3
26	15	Typic Grey Soils, slightly eroded	WNW Pufesti	0-22	-	-	-	-	5.60	-	3.14	0.159	10.70	125.90	17.24	-	-	-	-	-	76.4
				22-37	42.00	30.40	27.70	L/L	6.40	-	3.28	0.101	5.20	110.00	18.82	-	-	-	-	-	86.3
				37-55	41.80	27.70	30.50	L/L	6.65	-	1.45	-	-	-	18.04	-	-	-	-	-	86.4
				55-70	39.50	27.20	33.30	C/L	6.70	-	1.11	-	-	-	19.02	-	-	-	-	-	86.1
				75-100	41.70	31.10	27.20	L/L	6.65	-	0.73	-	-	-	18.44	-	-	-	-	-	86.1
				105-130	45.30	28.30	26.40	L/L	6.70	-	-	-	-	-	17.04	-	-	-	-	-	86.9

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (2 of 7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
28	18	Brown Soils with mollic A horizon and argillic B horizon	E Viisoara	0-18	47.70	29.40	22.90	L/L	6.30	-	1.83	0.111	17.10	125.90	-	-	-	-	-	-	-
				27-45	45.50	28.50	26.00	L/L	6.30	-	1.74	0.074	-	-	-	-	-	-	-	-	-
				45-57	42.90	27.30	29.80	L/L	6.80	-	1.14	-	-	-	-	-	-	-	-	-	-
				60-65	44.00	25.90	30.10	L/L	6.85	-	0.96	-	-	-	-	-	-	-	-	-	-
				80-110	48.00	25.00	27.00	L/L	7.10	-	0.64	-	-	-	-	-	-	-	-	-	-
				115-135	47.50	27.80	24.70	L/L	7.90	-	-	-	-	-	-	-	-	-	-	-	-
30	2	Typic Chernozems with Cambic B horizon	N Domnesti	10-20	51.00	25.30	23.70	L/L	6.10	-	2.08	0.128	28.80	181.40	14.86	-	-	-	-	-	82.6
				20-40	46.00	26.10	27.90	L/L	7.20	-	1.79	0.091	-	-	18.24	-	-	-	-	-	89.8
				51-63	44.70	25.40	29.90	L/L	7.20	-	1.42	-	-	-	18.64	-	-	-	-	-	89.1
				70-80	45.00	24.90	30.10	L/L	7.20	-	0.97	-	-	-	18.84	-	-	-	-	-	90.0
				90-100	47.20	23.10	29.70	L/L	7.30	-	-	-	-	-	17.94	-	-	-	-	-	94.6
				110-130	50.90	24.70	24.40	L/L	7.30	-	-	-	-	-	18.24	-	-	-	-	-	94.4
31	33	Typic Vertisols	Bolotesti	0-22	10.00	32.60	57.40	L/C	7.00	-	4.24	0.236	12.20	252.70	36.11	31.50	3.10	0.74	0.36	39.00	92.6
				30-40	9.50	29.20	61.30	C	7.50	-	2.90	0.150	-	-	36.84	33.00	2.69	0.50	0.65	39.00	94.5
				50-60	9.90	29.00	61.10	C	7.60	-	2.36	-	-	-	38.93	35.00	2.45	0.20	0.96	40.63	95.8
				70-90	9.30	27.00	63.70	C	7.80	-	1.94	-	-	-	37.07	33.00	2.40	0.48	1.14	38.32	96.7
				100-120	11.10	29.00	59.90	L/C	7.90	-	-	-	-	-	39.23	35.00	2.77	0.46	1.00	40.19	97.6
32	45	Typic Alluvial Soils, slightly to moderately gravelly, gravelly substratum	N Jariştea	0-15	55.60	23.80	20.60	S/L	8.32	1.10	1.43	0.091	4.70	141.70	-	-	-	-	-	16.42	-
				20-50	50.80	27.30	21.90	L/L	8.05	2.60	1.25	0.066	59.20	94.10	-	-	-	-	-	17.39	-
				53-61	58.90	24.30	16.80	L/S	8.20	4.10	0.69	-	-	-	-	-	-	-	-	13.52	-
				80-100	40.30	36.10	23.60	L/S	8.20	2.60	-	-	-	-	-	-	-	-	-	-	-
				120-130	61.50	19.40	19.10	L/S	8.20	0.90	-	-	-	-	-	-	-	-	-	-	-
37	2	Typic Chernozems with Cambic B horizon	E Bolotesti	10-25	58.10	19.40	22.50	L/L	8.00	3.60	2.33	0.134	64.70	78.30	-	-	-	-	-	20.29	-
				30-50	52.60	20.70	26.70	L/L	7.90	0.20	2.60	0.139	-	-	-	-	-	-	-	23.37	-
				53-71	58.50	19.20	22.30	L/L	8.40	7.30	1.46	-	-	-	-	-	-	-	-	16.42	-
				71-100	63.10	19.00	17.90	S/L	8.70	12.20	-	-	-	-	-	-	-	-	-	12.60	-
				100-125	75.10	12.00	12.90	S/L	8.80	9.00	-	-	-	-	-	-	-	-	-	10.63	-
38	3	Typic Chernozems with Cambic B horizon	S Ivanesti	0-26	33.50	33.10	33.40	C/L	6.80	-	4.33	0.107	9.60	268.60	22.82	19.25	2.77	0.70	0.10	25.70	88.8
				26-52	21.50	36.10	42.40	C/L	6.90	-	3.56	0.111	-	-	25.81	21.00	3.70	0.48	0.13	28.84	89.0
				2-65	18.10	38.80	43.10	C/L	7.00	-	3.05	-	-	-	29.21	24.75	3.90	0.43	0.13	30.97	94.3
				70-90	14.60	32.50	52.90	L/C	8.20	10.40	-	-	-	-	29.13	28.47	-	0.40	0.26	-	-
				100-120	11.00	30.80	58.20	L/C	8.20	12.30	-	-	-	-	28.74	28.05	-	0.41	0.28	-	-
39	8	Typic Chernozems with Cambic B horizon, gravelly to extremely gravelly, [illegible] substratum	S Ivanesti	0-27	67.10	15.00	17.90	L/L	5.90	-	1.82	0.098	2.70	110.00	14.06	-	-	-	-	-	80.2
				30-50	62.50	15.50	22.00	L/L	6.70	-	1.88	0.102	-	-	17.04	-	-	-	-	-	87.7
				55-75	63.60	15.60	20.80	L/L	7.00	-	1.50	-	-	-	16.84	-	-	-	-	-	90.2
41	14	Typic Grey Soils	W Tifesti	0-27	45.50	24.90	29.60	L/L	6.30	-	3.20	0.174	24.90	268.60	22.30	19.25	2.45	0.43	0.17	25.14	88.7
				30-50	41.20	25.70	33.10	C/L	6.90	-	2.90	0.130	-	-	19.85	16.00	2.45	0.70	0.20	22.18	89.5
				52-68	41.50	24.70	33.80	C/L	6.90	-	2.00	-	-	-	21.31	18.50	2.24	0.40	0.17	23.92	89.1
				70-80	46.00	25.00	29.00	L/L	7.00	-	1.49	-	-	-	18.80	16.50	1.81	0.34	0.15	20.00	94.0
				100-110	47.00	27.00	26.00	L/L	8.30	-	-	-	-	-	19.29	18.84	-	0.23	0.22	-	100.0
42	20	Brown Soils with argillic B horizon and surface water stey, slightly eroded	E Vitanesti	0-10	50.60	26.30	23.10	L/L	5.10	-	2.03	0.118	8.10	111.30	15.47	12.75	2.20	0.38	0.14	21.47	72.1
				20-30	45.60	26.40	28.40	L/L	5.30	-	1.67	0.093	1.60	99.80	16.92	14.00	2.47	0.29	0.16	21.92	77.2
				40-50	46.30	29.30	24.40	L/L	5.80	-	1.26	-	-	-	18.35	15.87	2.06	0.26	0.16	22.30	82.3
				60-70	41.40	26.50	32.10	L/L	5.60	-	0.66	0.060	-	-	19.72	16.25	2.88	0.40	0.19	23.50	83.9
				95-105	46.50	25.40	28.10	L/L	5.90	-	-	-	-	-	19.37	16.75	2.06	0.40	0.16	22.50	86.1
				116-126	50.60	23.70	25.70	L/L	7.90	14.60	-	-	-	-	21.06	20.46	-	0.28	0.32	-	100.0
43	23	Brown Soils with argillic B horizon slightly to modertely eroded (sheet and	N SOrbi - W Satu Nou	0-10	50.60	22.50	26.90	L/L	5.50	-	2.87	0.145	18.80	248.80	16.46	-	-	-	-	-	75.4
				30-40	3.70	22.60	23.70	L/L	5.50	-	3.23	0.159	-	-	17.24	-	-	-	-	-	75.4
				70-80	44.70	25.40	29.90	L/L	5.60	-	-	-	-	-	19.78	-	-	-	-	-	82.1
				100-110	56.10	19.60	24.30	L/L	7.80	23.60	-	-	-	-	-	-	-	-	-	-	-
44	18	Brown Soils with mollic A horizon and argillic B horizon	N SOrbi	0-10	50.60	22.50	26.90	L/L	5.50	-	2.87	0.145	18.80	248.80	16.46	-	-	-	-	-	75.4
				30-40	53.70	22.60	23.70	L/L	5.50	-	3.23	0.159	-	-	17.24	-	-	-	-	-	7.4
				70-80	44.70	25.40	29.90	L/L	5.60	-	-	-	-	-	19.78	-	-	-	-	-	82.1
				100-110	56.10	19.60	24.30	L/L	7.80	23.60	-	-	-	-	-	-	-	-	-	-	-

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (3 of 7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
46	14	Typic Grey Soils	SOrbi	0-10	50.90	25.80	23.30	L/L	5.60	-	2.21	0.118	20.00	203.00	15.46	-	-	-	-	-	77.5
				30-40	50.60	23.40	26.00	L/L	5.95	-	1.73	0.116	-	-	17.04	-	-	-	-	-	80.4
				50-60	38.10	25.80	36.10	C/L	6.70	-	1.49	-	-	-	22.16	-	-	-	-	-	87.3
				70-80	44.90	21.50	33.60	C/L	6.50	-	0.96	0.095	-	-	20.78	-	-	-	-	-	85.6
				100-110	45.40	21.20	33.40	C/L	6.40	-	-	-	-	-	20.36	-	-	-	-	-	85.4
				130-140	47.90	20.90	31.20	L/L	6.20	-	-	-	-	-	19.40	-	-	-	-	-	84.5
49	15	Typic Grey Soils, slightly eroded	N Tifesti	0-10	51.70	26.30	22.00	L/L	6.20	-	2.39	0.101	26.00	203.00	15.24	12.75	1.93	0.53	0.13	18.94	80.5
				30-40	48.40	24.70	26.90	L/L	6.00	-	1.55	0.086	-	-	17.41	14.75	2.14	0.36	0.16	20.82	83.6
				55-65	45.30	21.50	33.20	C/L	6.20	-	1.20	-	-	-	18.25	15.25	2.34	0.44	0.22	21.70	84.1
				70-80	46.30	21.20	32.50	C/L	6.05	-	1.02	0.068	-	-	18.43	15.25	2.55	0.44	0.19	22.10	83.4
				120-130	54.10	21.00	24.90	L/L	5.95	-	-	-	-	-	17.30	14.75	2.06	0.33	0.16	21.19	81.6
				153-165	8.40	21.00	20.60	L/L	7.70	13.20	-	-	-	-	18.11	17.59	-	0.23	0.29	-	100.0
50	21	Brown Soils with argillic B horizon, slightly eroded	NE SOrbi	0-10	53.40	19.90	26.70	L/L	5.80	-	1.31	0.079	14.10	168.60	15.26	-	-	-	-	-	79.7
				40-50	48.50	22.20	29.30	L/L	6.10	-	1.02	0.070	-	-	17.04	-	-	-	-	-	83.8
				60-70	48.30	21.40	30.30	L/L-C/L	6.04	-	0.51	-	-	-	19.40	-	-	-	-	-	86.0
				80-90	48.90	22.10	29.00	L/L	6.90	-	-	-	-	-	25.12	-	-	-	-	-	96.8
				100-110	54.20	21.80	24.00	L/L	7.80	17.60	-	-	-	-	-	-	-	-	-	-	-
55	14	Typic Grey Soils	Tifesti	0-10	54.00	25.10	20.90	L/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				18-29	53.70	25.70	20.60	L/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				34-45	47.70	26.00	26.30	L/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				50-60	47.40	22.80	29.80	L/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				61-72	46.10	21.60	32.30	C/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				85-95	48.50	22.50	29.00	L/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				110-120	47.50	26.00	26.50	L/L	-	-	-	-	-	-	-	-	-	-	-	-	-
56	2	Typic Chernozems with Cambic B horizon	E Tifesti	0-10	40.90	33.40	25.70	C/L	6.40	-	1.20	0.062	14.00	145.70	20.20	-	-	-	-	-	-
				30-40	49.20	2.80	25.00	L/L	6.80	-	1.50	0.097	10.40	122.80	19.40	-	-	-	-	-	-
				60-70	4.80	31.10	23.10	L/L	6.40	-	0.84	-	-	-	19.40	-	-	-	-	-	-
				90-100	47.00	26.00	27.00	L/L	6.50	-	-	-	-	-	19.54	-	-	-	-	-	-
				120-130	54.40	23.80	21.80	L/L	7.90	15.10	-	-	-	-	-	-	-	-	-	-	-
57	2	Typic Chernozems with Cambic B horizon	S Olesesti	0-10	49.00	23.30	27.70	L/L	6.95	-	2.69	0.136	81.00	340.50	-	-	-	-	-	-	-
				40-50	52.10	21.90	26.00	L/L	7.50	-	2.45	0.135	119.70	214.50	-	-	-	-	-	-	-
				60-70	51.50	20.40	28.10	L/L	7.50	0.60	1.08	-	-	-	-	-	-	-	-	-	-
				85-95	54.40	20.10	25.50	L/L	7.80	0.80	-	-	-	-	-	-	-	-	-	-	-
				120-130	55.50	21.90	22.60	L/L	7.90	17.80	-	-	-	-	-	-	-	-	-	-	-
63	10	Gley Chernozems with Cambic B horizon	E Tifesti	0-12	29.90	27.20	42.90	C/L	0.50	-	3.29	0.236	14.00	191.50	18.28	15.50	2.06	0.56	0.16	23.70	77.1
				30-40	25.30	28.20	46.50	C/L	6.15	-	2.81	0.126	2.00	168.60	22.71	19.50	2.47	0.55	0.19	26.88	84.5
				50-60	22.80	26.80	50.40	C/L	6.40	-	1.55	-	-	-	23.07	19.75	2.61	0.53	0.16	26.57	86.8
				80-90	26.20	25.30	48.50	C/L	6.90	-	-	-	-	-	20.71	18.00	2.06	0.49	0.16	23.07	89.8
94	44	Typic Alluvial Soils, slightly to very gravelly, gravelly substratum	S Panciu	0-20	56.90	21.80	21.30	L/L	7.60	-	-	0.147	69.40	260.30	-	-	-	-	-	-	-
				20-41	53.90	22.90	23.20	L/L	7.40	-	-	0.131	53.40	214.50	-	-	-	-	-	-	-
99	40	Typic Alluvial Soils, seldom flooded	S Panciu	0-15	82.70	6.00	11.30	L/S	7.80	5.30	0.54	0.039	29.80	60.46	-	-	-	-	-	-	-
				15-28	83.60	6.50	9.90	L/S	7.80	4.60	0.54	0.026	30.20	54.00	-	-	-	-	-	-	-
				28-46	90.40	5.00	4.60	L/S	7.85	5.90	-	-	-	-	-	-	-	-	-	-	-
				50-70	74.50	11.00	10.50	L/S	7.90	5.50	-	-	-	-	-	-	-	-	-	-	-
				80-100	67.00	14.90	18.10	S/L	7.60	0.40	0.65	-	-	-	-	-	-	-	-	-	-
113	2	Typic Chernozems with Cambic B horizon	NE Tifesti	0-13	63.70	16.70	19.60	S/L	7.20	-	1.54	0.085	20.90	122.80	19.02	-	-	-	-	-	97.0
				20-30	61.70	19.10	19.20	S/L	7.20	-	1.60	0.084	38.80	122.80	20.00	-	-	-	-	-	98.1
				60-70	57.40	21.10	21.50	L/L	7.50	-	-	-	-	-	-	-	-	-	-	-	-
				90-100	51.90	24.00	24.10	L/L	7.70	7.30	-	-	-	-	-	-	-	-	-	-	-

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (4 of 7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
119	34	Typic Regosols	N Tifesti	0-10	62.90	14.40	16.40	S/L	7.70	7.30	3.86	0.147	34.30	294.70	-	-	-	-	-	-	-
				15-25	73.00	14.50	12.50	S/L	7.80	8.30	1.25	0.059	27.10	214.50	-	-	-	-	-	-	-
				30-40	84.20	6.70	9.10	L/S	7.80	6.80	0.48	-	-	-	-	-	-	-	-	-	-
				60-70	84.00	6.10	9.90	L/S	7.60	9.10	0.36	-	-	-	-	-	-	-	-	-	-
120	14	Typic Grey Soils	SE Ruginesti-	0-15	54.40	23.90	21.70	L/L	5.90	-	1.54	0.086	14.00	122.80	14.47	12.00	1.93	0.40	0.14	18.40	78.6
				45-60	50.10	23.50	26.40	L/L	6.10	-	0.65	-	-	-	17.14	14.00	2.50	0.43	0.16	21.00	81.6
				70-85	51.40	25.60	23.00	L/L	6.20	-	0.48	-	-	-	15.86	13.00	2.34	0.38	0.14	19.10	83.0
				95-110	55.60	23.70	20.70	L/L	5.80	-	-	-	-	-	14.22	12.00	1.79	0.29	0.14	17.43	81.6
				140-160	57.30	24.50	18.20	S/L	7.70	15.20	-	-	-	-	17.72	17.20	-	0.23	0.29	-	100.0
121	2	Typic Chernozems with Cambic B horizon	S Ruginesti	0-15	57.10	20.30	22.60	L/L	5.60	-	2.49	0.127	22.00	145.80	13.10	-	-	-	-	-	74.2
				25-40	58.80	21.20	20.00	S/L	5.45	-	2.49	0.127	-	-	14.08	-	-	-	-	-	71.9
				45-55	53.40	24.90	21.70	L/L	5.70	-	2.55	-	-	-	155.66	-	-	-	-	-	77.2
				60-70	62.70	15.40	21.90	L/L	6.40	-	1.72	0.091	-	-	17.24	-	-	-	-	-	88.7
				80-90	51.30	19.20	29.00	L/L	6.00	-	-	-	-	-	16.46	-	-	-	-	-	89.3
				95-105	52.80	19.40	27.80	L/L	5.70	-	-	-	-	-	-	-	-	-	-	-	-
122	42	Gleyied Alluvial Soils	E Valeni - N	0-7	23.20	36.30	40.50	S/C	7.50	4.50	2.83	0.162	70.80	363.50	-	-	-	-	-	-	-
				40-50	42.60	31.10	26.30	L/L	7.75	6.20	1.45	-	-	-	-	-	-	-	-	-	-
				70-80	71.10	15.20	13.70	S/L	7.70	4.20	0.78	-	-	-	-	-	-	-	-	-	-
				90-110	82.80	8.40	8.80	L/S	7.60	3.60	-	-	-	-	-	-	-	-	-	-	-
				120-130	79.60	10.50	9.90	L/S	7.70	4.20	-	-	-	-	-	-	-	-	-	-	-
126	11	Typic Chernozems with argillic B horizon	Pufesti - N Dimnesti Sat	5-15	42.60	24.60	32.80	C/L	5.60	-	3.62	0.177	28.20	244.70	18.09	14.75	2.20	1.00	0.14	23.55	76.8
				30-40	45.70	25.30	29.00	L/L	6.00	-	2.79	0.139	3.10	203.00	19.24	16.00	2.47	0.61	0.16	23.62	81.5
				70-80	51.10	21.00	27.90	L/L	6.00	-	1.60	-	-	-	15.99	12.75	2.47	0.61	0.16	19.29	82.9
				110-120	47.80	22.60	29.60	L/L	6.05	-	-	-	-	-	-	-	-	-	-	-	-
128	41	Typic Alluvial Soils, phreatic phase (3 to 5 m deep water table)	N Pufesti	0-22	38.00	32.30	29.70	L/L	6.70	-	2.77	0.137	33.40	237.40	23.24	-	-	-	-	-	89.8
				54-76	17.90	45.70	36.40	C/L	6.80	-	4.16	-	-	-	23.86	-	-	-	-	-	90.5
				90-115	17.50	41.80	40.70	C/L	7.10	-	-	-	-	-	-	-	-	-	-	-	-
130	22	Brown Soils with argillic B horizon, moderately eroded	S Visoara	5-15	40.50	30.40	29.10	L/L	-	-	-	-	-	-	16.60	13.75	2.34	0.38	0.13	20.95	79.2
				26-36	48.60	30.60	20.80	L/L	-	-	-	-	-	-	11.31	9.50	1.44	0.23	0.14	14.51	78.0
				40-50	38.60	28.80	32.60	L/L-C/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				80-90	38.10	30.30	31.60	L/L	-	-	-	-	-	-	19.12	15.50	3.00	0.43	0.19	24.22	79.0
131	2	Typic Chernozems with Cambic B horizon	S Calimanesti	0-10	61.90	16.90	21.20	L/L	4.90	-	1.87	0.112	7.20	191.50	9.24	-	-	-	-	-	66.4
				15-25	62.00	17.10	20.90	L/L	4.70	-	1.69	0.098	5.40	111.30	9.44	-	-	-	-	-	66.2
				50-60	70.90	14.90	14.20	S/L	6.20	-	0.30	-	-	-	9.64	-	-	-	-	-	82.1
				70-80	42.90	27.30	29.80	L/L	6.20	-	-	-	-	-	15.52	-	-	-	-	12.12	84.2
				110-120	48.30	25.10	26.60	L/L	7.50	1.30	-	-	-	-	-	-	-	-	-	-	-
132	2	Typic Chernozems with Cambic B horizon	Ciorani	0-10	71.20	12.80	16.00	S/L	5.00	-	1.69	0.098	23.60	191.50	10.16	-	-	-	-	-	72.3
				20-30	72.80	12.10	15.10	S/L	5.40	-	1.51	0.094	15.80	111.50	9.16	-	-	-	-	-	70.8
				40-50	73.00	12.40	14.60	S/L	5.75	-	1.08	-	-	-	10.74	-	-	-	-	-	78.1
				65-75	73.90	11.90	14.20	S/L	6.30	-	0.66	0.048	-	-	-	-	-	-	-	-	-
				110-120	75.90	11.50	12.60	S/L	6.20	-	-	-	-	-	-	-	-	-	-	-	-
133	2	Typic Chernozems with Cambic B horizon	S Calimanesti	0-10	74.80	11.00	14.20	S/L	5.50	-	1.08	0.065	30.60	145.70	9.30	-	-	-	-	-	75.2
				20-30	68.30	14.00	17.70	S/L	5.60	-	0.96	0.062	-	99.80	9.34	-	-	-	-	-	75.3
				40-50	64.40	14.00	21.60	L/L	6.10	-	0.57	-	-	-	9.88	-	-	-	-	-	78.1
				60-70	67.20	13.80	19.00	S/L	6.00	-	0.42	-	-	-	11.42	-	-	-	-	-	81.3
				95-105	66.90	14.80	18.30	S/L	6.30	-	-	-	-	-	11.02	-	-	-	-	-	83.1
				120-130	68.20	14.40	17.40	S/L	6.40	-	-	-	-	-	-	-	-	-	-	-	-
137	13	Grey Soils with Cambic B horizon	SE Diochet	0-10	51.80	20.10	28.10	L/L	6.00	-	1.75	0.093	27.30	180.10	15.56	-	-	-	-	-	78.8
				30-40	50.00	23.30	26.70	L/L	5.95	-	1.63	-	-	-	15.56	-	-	-	-	-	81.0
				80-90	52.50	21.90	25.60	L/L	6.12	-	0.54	0.037	-	-	11.42	-	-	-	-	-	82.4
				120-130	61.80	20.30	17.90	S/L	7.70	17.20	-	-	-	-	-	-	-	-	-	-	-

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (5 of 7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
138	16	Typic Grey Soils, moderately eroded, Argillavic Soils	SE Diochetz - E Saul Nou	5-15	48.00	28.60	25.40	L/L	7.40	1.50	2.41	0.110	56.80	132.20	1.12	-	-	-	-	-	-
				22-32	52.80	23.90	23.30	L/L	7.50	2.10	2.11	0.095	-	-	1.49	-	-	-	-	-	-
				32-44	53.10	24.00	22.90	L/L	7.60	6.30	1.75	-	-	-	1.41	-	-	-	-	-	-
				44-53	3.10	2.10	21.80	L/L	7.70	5.30	1.08	0.030	-	-	1.25	-	-	-	-	-	-
				55-65	59.00	18.90	22.10	L/L	7.70	5.30	0.96	-	-	-	1.43	-	-	-	-	-	-
				80-90	54.70	23.80	21.50	L/L	7.75	5.50	0.84	-	-	-	1.44	-	-	-	-	-	-
141	23	Brown Soils with argillic B horizon slightly to moderately eroded (sheet and	N Padureni	0-20	43.20	26.20	30.60	L/L	5.90	-	1.27	0.068	13.10	180.10	14.58	-	-	-	-	79.60	1.3
				34-45	35.40	25.60	39.00	C/L	5.70	-	1.02	-	-	-	18.32	-	-	-	-	75.80	1.0
				55-70	35.30	26.00	38.70	C/L	5.30	-	0.84	-	-	-	17.82	-	-	-	-	74.30	0.8
				75-80	38.00	26.50	35.50	C/L	5.30	-	-	-	-	-	17.72	-	-	-	-	74.50	-
				90-105	40.60	23.80	35.60	C/L	5.40	-	-	-	-	-	16.72	-	-	-	-	74.20	-
				125-135	39.60	25.20	35.20	C/L	-	-	-	-	-	-	-	-	-	-	-	-	-
142	23	Brown Soils with argillic B horizon slightly to moderately eroded (sheet and	N Padureni - Jaristea	0-20	64.00	18.50	17.50	S/L	5.70	-	2.29	0.104	22.10	180.10	12.20	-	-	-	-	78.60	2.3
				35-40	61.10	18.20	20.70	L/L	5.85	-	1.02	-	-	-	12.40	-	-	-	-	83.90	1.0
				50-65	64.40	14.60	21.00	L/L	6.20	-	-	-	-	-	13.40	-	-	-	-	83.30	-
				65-70	58.30	19.10	22.60	L/L	5.70	-	-	-	-	-	13.40	-	-	-	-	81.40	-
14	14	Typic Grey Soils	Ruginesti	5-15	49.10	26.80	24.10	L/L	6.35	-	1.70	0.090	12.00	110.00	14.90	-	-	-	-	17.80	83.7
				20-30	47.00	25.20	27.80	L/L	6.80	-	1.60	-	-	-	17.00	-	-	-	-	19.10	89.0
				35-45	45.30	24.10	30.60	L/L	6.90	-	1.30	-	-	-	17.10	-	-	-	-	18.90	90.5
				60-70	42.50	24.20	33.30	C/L	7.05	-	-	-	-	-	20.60	-	-	-	-	22.10	93.2
				90-100	47.50	25.90	26.60	L/L	7.25	-	-	-	-	-	-	-	-	-	-	-	-
				110-120	49.00	25.40	25.60	L/L	7.25	-	-	-	-	-	-	-	-	-	-	-	-
				135-140	48.50	25.40	26.10	L/L	8.25	10.80	-	-	-	-	-	-	-	-	-	-	-
1	2	Typic Chernozems with Cambic B horizon	Pufesti	5-20	47.20	25.10	27.70	L/L	5.90	-	3.00	0.180	3.60	18.00	18.40	-	-	-	-	22.10	83.2
				25-35	43.70	27.80	28.50	L/L	6.10	-	3.00	0.240	1.30	14.80	18.70	-	-	-	-	22.00	85.0
				38-50	54.80	15.70	29.50	L/L	6.30	-	1.80	-	1.40	19.80	16.80	-	-	-	-	19.00	88.4
				50-65	42.80	25.40	31.80	L/L	6.20	-	-	-	-	-	17.20	-	-	-	-	19.40	88.6
				70-95	44.80	25.10	30.10	L/L	6.40	-	-	-	-	-	-	-	-	-	-	-	-
				120-130	49.30	25.10	25.60	L/L	6.80	-	-	-	-	-	-	-	-	-	-	-	-
				130-145	51.10	25.80	23.10	L/L	8.40	13.80	-	-	-	-	-	-	-	-	-	-	-
39	22	Brown Soils with argillic B horizon,	Pufesti	0-24	42.30	30.10	27.60	L/L	6.40	-	2.18	0.080	3.30	11.00	-	-	-	-	-	-	-
				24-36	35.90	29.20	34.90	C/L	6.60	-	1.44	0.090	1.10	12.00	-	-	-	-	-	-	-
				36-62	34.20	26.40	39.40	C/L	6.65	-	-	-	-	-	-	-	-	-	-	-	-
				62-116	36.70	25.20	38.10	C/L	-	-	-	-	-	-	-	-	-	-	-	-	-
				116-130	39.40	31.60	29.00	C/L	-	18.99	-	-	-	-	-	-	-	-	-	-	-
86	2	Typic Chernozems with Cambic B horizon	Pufesti	0-16					5.80	-	2.85	0.180	5.00	16.00	-	-	-	-	-	-	-
				16-40	-	-	-	-	6.00	-	2.50	0.100	3.80	13.00	-	-	-	-	-	-	-
				40-56	-	-	-	-	6.30	-	1.65	0.110	0.70	17.00	-	-	-	-	-	-	-
				60-80	-	-	-	-	6.45	-	-	-	-	-	-	-	-	-	-	-	-
				80-105	-	-	-	-	6.60	-	-	-	-	-	21.48	-	-	-	-	22.54	95.3
				112-130	-	-	-	-	7.45	4.19	-	-	-	-	46.90	-	-	-	-	47.80	99.6
110	14	Typic Grey Soils	Pufesti	0-20	-	-	-	-	6.00	-	3.01	0.120	1.00	11.00	-	-	-	-	-	-	-
				30-40	-	-	-	-	6.20	-	2.06	0.110	1.10	12.00	-	-	-	-	-	-	-
				45-60	-	-	-	-	6.45	-	1.52	0.080	-	15.00	-	-	-	-	-	-	-
				60-80	-	-	-	-	6.60	-	-	-	-	-	-	-	-	-	-	-	-
				80-100	-	-	-	-	6.65	-	-	-	-	-	-	-	-	-	-	-	-
				110-130	-	-	-	-	7.95	14.19	-	-	-	-	-	-	-	-	-	-	-
132	42	Gleyied Alluvial Soils	Pufesti	0-20	55.00	22.50	22.50	L	8.30	3.36	1.43	0.100	6.90	12.00	-	-	-	-	-	-	-
				25-35	57.40	20.50	22.10	L	8.40	2.90	1.40	0.080	5.20	10.00	-	-	-	-	-	-	-
				40-60	33.50	36.30	30.20	L	8.40	4.83	-	-	-	-	-	-	-	-	-	-	-
				60-80	31.70	36.10	32.20	L	8.40	6.77	-	-	-	-	-	-	-	-	-	-	-
161	43	Gleyied Alluvial Soils	Pufesti	0-25	-	-	-	-	7.75	-	4.10	0.250	12.00	67.00	-	-	-	-	-	-	-
				30-35	-	-	-	-	8.00	1.30	2.56	0.170	13.80	28.00	-	-	-	-	-	-	-
				40-50	-	-	-	-	8.10	1.96	-	-	-	-	-	-	-	-	-	-	-
				60-80	-	-	-	-	8.00	3.59	-	-	-	-	-	-	-	-	-	-	-
195	14	Typic Grey Soils	Pufesti	0-18	-	-	-	-	5.75	-	2.20	0.070	10.40	16.00	11.10	-	-	-	-	14.60	76.0
				18-27	-	-	-	-	6.25	-	1.90	-	-	-	-	-	-	-	-	-	-
				27-40	-	-	-	-	6.45	-	1.30	-	-	-	-	-	-	-	-	-	-
				50-65	-	-	-	-	6.45	-	-	-	-	-	-	-	-	-	-	-	-
				85-100	-	-	-	-	6.45	-	-	-	-	-	-	-	-	-	-	-	-
				125-140	-	-	-	-	8.20	12.50	-	-	-	-	-	-	-	-	-	-	-

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (6 of 7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
74	40	Typic Alluvial Soils, seldom flooded	Movilita	0-18	82.00	7.80	10.20	L/S	8.05	-	0.88	0.040	1.50	16.00	-	-	-	-	-	-	-
				18-50	-	-	-	-	8.00	-	0.70	-	-	-	-	-	-	-	-	-	-
				50-80	-	-	-	-	8.05	2.93	-	-	-	-	-	-	-	-	-	-	-
114	21	Brown Soils with argillic B horizon,slightly eroded	Movilita	0-25	38.00	32.20	29.00	L	6.25	-	2.37	0.120	2.70	13.00	-	-	-	-	-	-	-
				25-36	33.40	28.90	37.70	L	6.45	-	2.52	0.100	0.90	15.00	16.78	-	-	-	-	18.51	90.7
				36-47	34.50	26.50	39.00	L-C/L	6.65	-	1.76	0.230	0.80	18.00	-	-	-	-	-	-	-
				47-60	35.90	24.40	39.70	L-C/L	6.75	-	1.21	-	-	-	18.56	-	-	-	-	19.77	93.9
				80-100	36.80	28.70	34.50	L	6.90	-	-	-	-	-	18.36	-	-	-	-	19.40	94.6
				123-145	38.30	30.50	31.20	L	7.85	12.72	-	-	-	-	44.10	-	-	-	-	44.27	99.6
149	14	Typic Grey Soils	Movilita	0-24	-	-	-	L	6.45	-	3.64	0.120	6.20	14.00	17.18	-	-	-	-	19.18	90.1
				24-37	-	-	-	L	6.45	-	2.37	0.090	2.50	15.00	20.24	-	-	-	-	21.80	92.8
				37-53	-	-	-	L-C/L	6.55	-	1.48	0.140	2.50	17.00	18.76	-	-	-	-	20.14	93.2
				55-70	-	-	-	L-L	6.75	-	1.21	-	-	-	-	-	-	-	-	-	-
				80-97	-	-	-	L	6.80	-	-	-	-	-	-	-	-	-	-	-	-
				97-136	-	-	-	L	6.85	-	-	-	-	-	-	-	-	-	-	-	-
				136-150	-	-	-	L	7.95	13.05	-	-	-	-	42.17	-	-	-	-	42.29	99.6
73	44	Typic Alluvial Soils, phreatic phase (3 to 5 m deep water table)	Tifesti	10-20	45.60	28.10	26.30	L/L	8.40	8.60	2.20	0.120	170.00	175.00	-	-	-	-	-	-	-
				40-50	48.70	37.60	23.70	L/L	8.40	9.40	1.30	-	-	-	-	-	-	-	-	-	-
				65-75	57.10	21.30	21.60	L/L	8.40	9.30	1.30	-	-	-	-	-	-	-	-	-	-
				95-105					8.30	9.30	-	-	-	-	-	-	-	-	-	-	-
				120-130	77.80	9.60	12.60	L/S	8.45	7.00	-	-	-	-	-	-	-	-	-	-	-
178	15	Typic Grey Soils,slightly eroded	Tifesti	10-20	-	-	-	L	6.60	-	1.60	0.090	7.00	165.00	-	-	-	-	-	-	-
				30-40	-	-	-		6.95	-	-	-	-	-	-	-	-	-	-	-	-
				50-60	-	-	-		7.30	-	-	-	-	-	-	-	-	-	-	-	-
				70-80	-	-	-		7.10	-	-	-	-	-	-	-	-	-	-	-	-
				100-110	-	-	-		7.40	-	-	-	-	-	-	-	-	-	-	-	-
				130-140	-	-	-		8.00	16.10	-	-	-	-	-	-	-	-	-	-	-
163	14	Typic Grey Soils	Tifesti	10-20	-	-	-	L/L	7.40	-	2.00	0.110	4.00	130.00	19.20	-	-	-	-	20.00	96.0
				30-35	-	-	-	L/L	7.60	-	1.60	-	-	-	19.10	-	-	-	-	19.60	97.4
				40-50	-	-	-	L/L	7.50	-	1.50	-	-	-	20.10	-	-	-	-	20.60	97.6
				60-75	-	-	-	L/L	7.35	-	-	-	-	-	-	-	-	-	-	-	-
				90-110	-	-	-	L/L	7.00	-	-	-	-	-	-	-	-	-	-	-	-
				120-130	-	-	-	L/L	8.20	16.10	-	-	-	-	-	-	-	-	-	-	-
202	18	Brown Soils with mollic A horizon and argillic B horizon	Tifesti	90-100	-	-	-	L/L	7.00	-	-	-	-	-	-	-	-	-	-	-	-
				120-130	-	-	-	-	8.20	18.50	-	-	-	-	-	-	-	-	-	-	-
244	20	Brown Soils with argills B horizon and surface water glev,slightly eroded	Tifesti	10-20	52.90	25.90	21.20	L/L	6.20	-	1.10	0.070	17.00	85.00	9.90	-	-	-	-	13.80	71.7
				26-34	50.40	24.20	25.40	L/L	6.80	-	0.80	-	-	-	11.60	-	-	-	-	13.10	88.5
				35-45	47.60	22.90	29.50	L/L	6.55	-	0.70	-	-	-	13.20	-	-	-	-	1.20	86.8
				55-65	42.90	20.90	36.20	C/L	6.10	-	0.60	-	-	-	17.20	-	-	-	-	20.20	85.1
				80-90	44.60	21.20	34.20	C/L	6.70	-	-	-	-	-	19.10	-	-	-	-	21.70	91.7
				100-110	47.60	24.80	27.60	L/L	6.95	-	-	-	-	-	-	-	-	-	-	-	-
				120-130	48.00	23.00	29.00	L/L	6.80	-	-	-	-	-	-	-	-	-	-	-	-
				140-150	46.30	22.80	30.90	L/L	6.85	-	-	-	-	-	-	-	-	-	-	-	-
69	46	Alluvial soils, very to extremely gravelly, gravelly substratum	Tifesti	10-20	62.20	17.90	19.90	S/L	8.40	6.30	2.20	0.120	153.00	140.00	-	-	-	-	-	-	-
				30-40	71.90	13.80	14.30	S/L	8.40	10.70	0.90	-	-	-	-	-	-	-	-	-	-
				60-70	86.30	5.90	7.80	L/S	8.40	8.70	-	-	-	-	-	-	-	-	-	-	-
150	2	Typic Chernozems with Cambic B horizon	Tifesti	10-20	50.90	20.90	28.20	L/L	7.30	-	1.90	0.120	17.00	170.00	19.50	-	-	-	-	21.00	92.8
				30-40	47.90	23.10	29.00	L/L	7.40	-	1.70	-	-	-	19.80	-	-	-	-	20.90	94.7
				50-60	46.50	20.00	33.50	L/L	7.20	-	1.10	-	-	-	19.90	-	-	-	-	21.00	94.8
				70-80	48.00	21.20	30.80	L/L	6.75	-	-	-	-	-	19.10	-	-	-	-	21.00	90.5
				100-110	51.20	22.80	26.00	L/L	7.20	-	-	-	-	-	-	-	-	-	-	-	-
				125-135	53.30	21.40	25.30	L/L	8.20	17.50	-	-	-	-	-	-	-	-	-	-	-
151	2	Typic Chernozems with Cambic B horizon	Tifesti	10-20	49.40	21.10	29.50	L/L	6.95	-	2.30	0.120	10.00	235.00	19.40	-	-	-	-	20.90	92.8
				25-35	47.40	22.20	30.40	L/L	7.50	-	1.80	-	-	-	22.60	-	-	-	-	23.30	97.0
				40-50	47.30	20.50	32.20	L/L	7.35	-	1.50	-	-	-	22.80	-	-	-	-	23.60	96.0
				60-70	57.00	17.50	25.50	L/L	7.25	-	-	-	-	-	-	-	-	-	-	-	-
				100-110	51.00	22.30	26.70	L/L	7.00	-	-	-	-	-	-	-	-	-	-	-	-
				120-130	49.50	33.70	25.80	L/L	8.20	12.20	-	-	-	-	-	-	-	-	-	-	-
133	48	Alluvial soils extremely gravelly (rubble	Tifesti	10-20	82.00	7.80	10.20	L/S	8.45	8.60	0.60	0.040	44.00	105.00	-	-	-	-	-	-	-
				30-40	88.80	4.40	6.80	L/S	8.40	9.00	0.50	-	-	-	-	-	-	-	-	-	-
				60-70	-			-	8.40	10.70	-	-	-	-	-	-	-	-	-	-	-

Table 3.2.5-A5 Results of Soil Investigations on the Profiles (7 of 7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
40	10	Gleyied Chernozems with Cambic B horizon	Tifesti																		
				10-20	38.70	29.90	31.40	L/L	6.80	-	3.00	0.170	51.00	290.00	23.80	-	-	-	-	25.70	92.6
				30-40	35.20	26.50	38.30	C/L	6.65	-	2.80	-	-	-	26.00	-	-	-	-	27.70	93.9
				45-55	35.30	36.10	38.60	C/L	7.00	-	2.10	-	-	-	25.80	-	-	-	-	27.10	95.2
				65-75	43.70	22.60	33.70	C/L	7.20	-	-	-	-	-	-	-	-	-	-	-	-
				90-100	41.00	24.00	35.00	C/L	7.20	-	-	-	-	-	-	-	-	-	-	-	-
				105-115	40.00	23.60	36.40	C/L	7.40	-	-	-	-	-	-	-	-	-	-	-	-
23	5	Typic Chernozems with Cambic B horizon, slightly eroded	Tifesti																		
				0-20	55.50	19.60	24.90	L/L	6.75	-	2.30	0.090	8.00	125.00	18.20	-	-	-	-	19.50	93.3
				20-35	54.60	19.40	26.00	L/L	7.20	-	2.20	-	-	-	21.00	-	-	-	-	22.10	95.0
				35-40	53.10	18.50	28.40	L/L	7.40	-	1.80	-	-	-	19.70	-	-	-	-	20.50	96.1
				45-55	53.10	18.40	28.50	L/L	7.50	-	1.40	-	-	-	-	-	-	-	-	-	-
				60-70	55.60	19.40	25.00	L/L	7.70	-	-	-	-	-	-	-	-	-	-	-	-
				90-100	60.70	18.30	21.00	L/L	7.40	-	-	-	-	-	-	-	-	-	-	-	-
				110-120	58.50	18.70	22.80	L/L	8.10	14.80	-	-	-	-	-	-	-	-	-	-	-
41	8	Typic Chernozems with Cambic B horizon, gravelly to extremly gravelly,	Bolovesti																		
				10-20	63.00	15.10	21.90	L/L	5.40	-	2.20	0.11	3.00	120.00	10.10	-	-	-	-	14.00	72.10
				25-30	64.40	12.40	23.20	S/L	6.05	-	2.50	-	-	-	13.80	-	-	-	-	16.40	84.1
				35-40	-	-	-	-	6.25	-	1.80	-	-	-	14.20	-	-	-	-	16.30	87.1
				60-70	69.30	10.60	20.10	S/L	6.40	-	-	-	-	-	-	-	-	-	-	-	-
				90-100	82.40	6.80	10.80	L/S	6.55	-	-	-	-	-	-	-	-	-	-	-	-
20	8	Typic Chernozems with Cambic B horizon, gravelly to extremly gravelly,	Bolovesti																		
				5-15	52.80	21.50	25.70		6.00	-	2.80	0.140	5.00	155.00	5.80	-	-	-	-	18.60	84.9
				25-35	46.50	21.60	31.90		6.55	-	3.30	-	-	-	22.00	-	-	-	-	24.10	91.3

Source : OSPA Bacau, 1974 - 1989

Table 3.2.6-A1 Standard of Land Clasification

Constraints	Class I	Classe II	Classe III	Classe IV	Classe V	Classe VI
Texture	SL, L	LS, CL, CLSi	S, SC, C	S, C	S, C	S, C
Slope and erosion (p)	0-2% erosion no visible	2.1-10% slight moderate erosion	10.1-15% moderate-strong erosion	15.1-20% strong-very strong erosion	20.1-25% v.storng-excesive erosion	>25% excesive erosion
Water stagnation on soil surface (w)	no stagnation	short time stagnation 5-15 days	medium time stagnation 15-30 days	long time stagnation >30 days	very long time stagnation marsh	-
Depth of ground water (Q)	<3 m	2-3 m	1-2 m	0.5-1 m	<0.50	pond
Flooding (i)	no flooding	rare flooding	moderate flooding	frequent flooding	once by year	more once by year
Gravel in soil profile (q)	<6%	6-50%	26-75%	51-75%	51-75%	75% or more

Source : The Methodology of the Elaboration of Soil's Reports. Norm number 20 A/1986

Table 3.2.6-A2 Land Classification by Soil Units in the Study Area (1 of 4)

No.	Soil Classification	Symbol	Discription	Land Classification and Constrains																	Total ha	Ratio %
				I	II						III			IV			V		VI			
					w	q	Qw	Q	P	I	P	Q	W	P	Qw	Q	p	Qw	Q	I		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	Sub Table	I	LAND CLASSIFICATION IN IRRIGATION STUDY AREA																			
1	Mollisols	Cxi	Typic Chernozem	34.1								44,082.0										
2		Cxi	Typic Chernozem with cambicB horizon (on loess deposit and loam texture)	8,984.5																	34.1 8,984.9	0.1 33.1
3		Cxi	Typic Chernozem with cambicB horizon (on alluvial deposit with clay-loamy texture)		1,011.9																1,011.9	3.7
4		Cxi/e	Typic Chernozem with cambic B horizon slightly eroded						99.7												99.7	0.4
5		Cxi	Typic Chernozem with cambic B horizon moderately eroded						410.3												410.3	1.5
6		Cxi	Typic Chernozem with cambic B horizon slightly to very gravelly			1,150.1															1,150.1	4.2
7		Cxi	Typic Chernozem with cambic B horizon, gravelly to very gravelly, gravelly substratum			353.3															353.3	1.3
8		Cxi	Typic Chernozem with cambic B horizon, gravelly extremely gravelly, gravelly substratum									1,105.9									1,105.9	4.1
9		Cvs	Vertic Chernozem with cambic B horizon and vertisols		245.0																245.0	0.9
10		Cvs	Vertic Chernozem with cambic B horizon		137.8																137.8	0.5
11		Cgz	Gley Chernozem with cambic B horizon				160.0														160.0	0.6
12		Cti/e	Typic Chernozem with argillic b horizon slightly eroded						46.0												46.0	0.2
13		CNcc	Grey Soils with cambic B horizon	243.3																	243.3	0.9
14		CNti	Typic Grey Soils		2,678.5																2,678.5	9.8
15		CNti/e	Typic Grey Soils slightly eroded						2,338.0												2,338.0	8.6
16		CN/e	Typic Grey Soils moderately eroded						130.6												130.6	0.5

Table 3.2.6-A2 Land Classification by Soil Units in the Study Area (2 of 4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
18	Argilluvic soils	BDmo	Brown Soils with mollic B horizon and argillic B horizon		80.2																80.2	0.3
19		BDpz	Brown Soils with argillic B horizon and surface water glay		93.3																93.3	0.3
21		BDti/e	Brown Soils with argillic B horizon, slightly eroded						1,330.8												1,330.8	4.9
22		BDti/e	Brown Soils with argillic B horizon, moderately eroded						502.5												502.5	1.8
24		BD/e	Brown Soils with argillic B horizon, and Guillied land								6.8										6.8	0.0
30	Hydromorphic soils	LGi	Eutric Humic Gley Soils												97.5						97.5	0.4
31		GGi	Eutric Low Humic Gley Soils												274.8						274.8	1.0
32		GGmi	Boggy Gley Soils															46.6			46.6	0.2
33	Vertisols	VSti	Typic Vertisols										555.0								555.0	2.0
34	Undevolped Soils	RSti	Typic Regosols														240.1				240.1	0.9
36		RSti	Typic Regosols and Guillied land														5.2				5.2	0.0
38		SAti	Typic Alluvial Soils	1,011.9																	1,011.9	3.7
39		SAti	Typic Alluvial Soils		331.8																331.8	1.2
40		SAti	Typic Alluvial Soils, seldom flooded							452.7											452.7	1.7
41		SAti	Typic Alluvial Soils, phreatic phase					266.2													266.2	0.9
42		SAgz	Gley Alluvial Soils					911.0													911.0	3.4
43		SAgz	Gley Alluvial Soils					180.1													180.1	0.7
44		SAti	Typic Alluvial Soils, slightly to moderately gravelly, gravelly substratum			374.7															374.7	1.4
45		SAti	Typic Alluvial Soils, slightly to moderately gravelly, gravelly substratum			140.1															140.1	0.5
46		SAti	Alluvial Soils, very to extremely gravelly, gravelly substratum																706.4		706.4	2.6
47		SAmo	Mollic Alluvial Soils	204.4																	204.4	0.8
48		AAls	Alluvial Soils Extremely, gravelly (rubble land)																170.5		170.5	0.6
50		AAti	Typic Alluvial Protosol, slightly to moderately gravelly seldom flooded													78.8					78.8	0.3
	Sub Total 1	ISA	Ha	10,478.6	4,578.5	2,618.4	160.0	1,357.3	4,857.9	452.7	6.8	1,105.9	555.8		372.3	78.8	245.3	46.6	876.9		27,191.0	100.0
			Ratio %	38.5	16.9	7.4	0.6	5.0	17.9	1.7	0.0	4.0	2.0		1.4	0.3	0.9	0.2	3.2			

Table 3.2.6-A2 Land Classification by Soil Units in the Study Area (3 of 4)

No.	Soil Classification	Symbol	Description	Land Classification and Constrains																	Total ha	Ratio %
				I	II						III			IV			V		VI			
					w	g	gw	q	p	I	p	q	w	p	qw	g	p	qw	q	I		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sub table		II	LAND CLASSIFICATION IN SOIL CONSERVATION STUDY AREA																			
2	Mollisols	Cti	Typic Chernozem with cambic B horizon (on loess deposit and loam texture)	338.5																	338.5	2.0
4		Cti/e	Typic Chernozem with cambic B horizon slightly eroded						120.4												120.4	0.7
5		Cti	Typic Chernozem with cambic B horizon moderately eroded						5.6												5.6	0.0
12		Cki/e	Typic Chernozem with Argillic B horizon slightly eroded						107.1												107.1	0.6
14		CNti	Typic Grey Soils		655.7																655.7	3.9
15		CNti/e	Typic Grey Soils slightly eroded						1,103.8												1,103.8	6.5
16		CN/e	Typic Grey Soils moderately eroded						503.3												503.3	2.9
17		CN/e	Typic Grey Soils moderately eroded sheet and gully erosion Brown Soils with mollic						160.9												160.9	0.9
18	Argillavic soils	BDmo	B horizon and argillic B horizon Brown Soils with argillic		302.2																302.2	1.8
19		BDpz	B horizon and surface water gley Brown Soils with argillic		444.1																444.1	2.6
20		BDpz/e	B horizon and surface water gley, slightly Brown Soils with argillic						1,454.4 2,168.2												1,454.4 2,168.2	8.6 12.8
21		BD ti/e	B horizon, slightly eroded																			
22		BD ti/e	Brown Soils with argillic B horizon, moderately eroded						2,019.3												2,019.1	12.1
23		BD ti/e	Brown Soils with argillic B horizon, slightly to moderately eroded (sheet and gully erosion)						1,023.8												1,023.8	6.1
24		BD/e	Brown Soils with argillic B horizon, and gullied land							399.0											399.0	2.4
25		BD/e	Brown Soils with argillic B horizon severely eroded										101.9								101.9	0.6
26		BPpz	Bleached Brown Soils with argillic B horizon and surface water gley		107.1																107.1	0.6

Table 3.2.6-A2 Land Classification by Soil Units in the Study Area (4 of 4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
27	Argilluvic soils	BPpz/e	Bleached Brown Soils with argillic B horizon and surface water gley slightly eroded		399.2																399.2	2.4
28		BP/e	Brown Soils with argillic B horizon, moderately - severely eroded							472.4											472.4	2.8
29	Soils with cambic B horizon (other then mollisols)	BMti	Brown Soils with cambic B horizon	33.7																	33.7	0.2
33	Vertisols	VSti	Typic Vertisols										35.1								35.1	0.2
34	Undeveloped soils	RSti	Typic Regosols														839.0				839.0	4.9
35		RSti	Typic Regosols														366.4				366.4	2.2
36		RSti	Typic Regosols and Gullied land														1,073.3				1,073.3	6.6
37		ERti	Severely Eroded Soils								342.8										342.8	1.9
38		Sati	Typic Alluvial Soils	353.9																	353.9	2.1
39		Sati	Typic Alluvial Soils		22.5																22.5	0.1
40		Sati	Typic Alluvial Soils, seldom flooded						1,006.8												1,006.8	6.0
43		SAgz	Gley Alluvial Soils					309.7													309.7	1.8
44		SAti	Typic Alluvial Soils, slightly, to moderately gravelly, gravelly substratum			255.9															255.9	1.5
45		SAti	Typic Alluvial Soils slightly, to moderately gravelly, gravelly substratum			192.0															192.0	1.1
48		AAls	Alluvial Soils extremelly, gravelly (rubble land)																		191.2	0.9
49		AAgz	Gley Alluvial protosol often flooded																		39.8	0.2
	Sub Total II	SCSA	Ha	762.1	1,930.8	447.9		309.7	8,666.8	1,006.8	1,196.2		35.1	101.9			2,278.7		151.2	39.8	16,891.0	
			Ratio %	4.3	11.4	2.7		1.8	51.3	6.0	7.1		0.2	0.6			13.5		0.9	0.2		100.0
	TOTAL AGRICULTURAL LAND OF STUDY AREA																				44,082.0	

Table 3.2.6-A3 Summary of Land Classification by Soil Unit in the Study Area

Sector		Irrigation Study Area (ISA)				Soil Conservation Area (SCSA)			
Land Class	Constraints	Area by Contraints (ha)	Ratio (%)	Area by Class (ha)	Ratio (%)	Area by Contraints (ha)	Ratio (%)	Area by Class (ha)	Ratio (%)
I		-	-	10,478.6	38.5	726.1	4.3	726.1	4.3
II	w	4,578.5	16.8	13,424.8	49.5	1,930.8	11.4	12,362.0	73.2
	q	2,018.4	7.4			447.9	2.7		
	Qw	160.0	0.6			-	-		
	Q	1,357.3	5.0			309.7	1.8		
	P	4,857.9	17.9			8,666.8	51.3		
	i	452.7	1.7			1,006.8	6.0		
III	P	6.8	0.0	1,667.7	6.0	1,196.2	7.1	1,231.3	7.3
	q	1,105.9	4.1			-	-		
	w	555.0	2.0			35.1	0.2		
IV	P	-	-	451.1	1.7	101.9	0.6	101.9	0.6
	Qw	372.3	1.4			-	-		
	q	78.8	0.3			-	-		
V	P	245.3	0.9	291.9	1.1	2,278.7	13.5	2,278.7	13.5
	Qw	46.6	0.2			-	-		
VI	q	876.9	3.2	876.9	3.2	151.2	0.9	191.0	1.1
	i	-	-			39.8	0.2		
TOTAL		1,671.4	61.5	27,191.0	100.0	16,165.0	95.7	16,891.0	100.0

Notes : w = Water stagnation
q = Skeleton(stones)
P = Slope and erosion
Q = Depth ground water
i = Flooding

Table 3.3.2 - A1 Area Cultivated, Production and Unit Yield of Crops in 19 Towns/Villages Related to the Study Area*

Crops Cultivated	Area cultivated (ha)			Production (ton)			Yield (kg/ha)			
	1985	1990	1992	1985	1990	1992	1985	1990	1992	Average
Wheat	11,756	12,953	5,959 (9.8%)	22,318	33,304	15,190	1,898	2,571	2,549	2,340
Maize	14,915	13,546	26,506 (43.6%)	70,571	35,132	43,383	4,732	2,594	1,637	2,987
Barley	2,099	2,679	1,582 (2.6%)	3,954	5,360	5,323	1,884	2,001	3,365	2,416
Bean seeds	547	12	41 (0.0%)	761	120	110	1,391	10,000	2,683	4,691
Sugar beet	495	165	224 (0.4%)	7,468	2,743	3,421	15,087	16,624	15,272	15,661
Sunflower	2,345	1,447	1,294 (2.1%)	4,469	1,869	1,656	1,906	1,292	1,280	1,492
Potatoes	975	877	485 (0.8%)	17,776	6,427	6,187	18,232	7,328	12,757	12,772
Vegetables	1,136	1,526	1,564 (2.6%)	22,302	17,868	29,254	19,632	11,709	18,705	16,682
Pasture - Perennial	3,821	5,764	4,192 (6.9%)	108,636	101,748	105,536	28,431	17,652	25,176	23,753
- Annual	0	3,592	2,045 (3.4%)	0	50,253	26,685	-	13,990	13,049	9,013
Orchards	-	-	1,705 (2.8 %)	18,542	19,729	38,876	-	-	-	-
Vineyards	14,207	14,683	15,228 (25.0%)	33,068	110,378	55,474	2,328	7,517	3,643	4,495
Total	52,296	57,244	60,825 (100%)	-	-	-	-	-	-	-

Source : DJS-Vrancea
Note : * including the areas outside of the Study Area

Table 3.3.3 - A1 Number of Livestock Raised and Their Production in 19 Towns/Villages Related to the Study Area*

		Year				Per Farm**
		1986	1988	1990	1992	Household
Number of heads raised (heads/Family)	Cattle	32,829	29,933	31,852	21,528	0.87
	Pigs	16,523	16,472	26,285	40,995	0.72
	Sheep	97,947	95,313	80,951	59,661	2.20
	Goat	12,108	14,900	15,836	12,770	0.40
	Horse	4,887	4,780	4,690	878	0.13
	Chicken	868,831	1,014,173	1,030,673	1,086,333	28.07
	Bee	8,635	8,660	7,185	1,888	0.20
	House rabbit	7,612	32,746	9,374	703	0.26
Production	Meat(ton)	13,500	13,694	10,090	16,059	0.27
	Cattle milk (h lit)	197,971	171,361	137,425	155,835	3.74
	Sheep/Goat milk (h lit)	15,842	12,810	9,913	37,203	0.27
	Wool (kg)	179,900	159,439	118,148	124,684	3.22
	Eggs (1,000 pcs.)	27,137	28,701	44,093	47,990	1.20
	Honey (Kg)	152,900	176,766	37,789	23,804	1.03

Source : DJS-Vrancea
Note : * including the areas outside of the Study Area
** in 1992

Table 3.3.3-A2 Number of Livestock Bred and Their Production by Type of Farming in 19 Towns/Villages Related to the Study Area

Type of Farming	Livestock	No. of Farm Households bred Livestock (%)	No. of Livestock bred (heads)	Newborn Livestock (heads)	Live-weight increased (t)	Milk (h lit)	Yogurt / Butter (kg)	Cheese (kg)	Wool (kg)	Eggs (x1000)	Honey (kg)
I	Dairy cattle	38.0	0.4	0.3	0.0	9.9	62.0	9.4	-	-	-
	Beef cattle	0.0	-	-	-	-	-	-	-	-	-
	Pig	89.9	2.0	0.9	0.0	-	-	-	-	-	-
	Goat	21.5	1.2	1.1	0.0	2.1	7.4	0.0	-	-	-
	Sheep	54.4	9.4	8.3	0.1	5.2	8.4	0.0	91.1	-	-
	Horse	25.3	0.4	0.0	0.0	-	-	-	-	-	-
	Poultry	94.9	28.5	22.7	0.7	-	-	-	-	2.57	-
	Bee	1.3	0.1	0.0	-	-	-	-	-	-	0.89
AAS	Dairy cattle	36.4	0.5	0.5	0.1	13.5	0.0	9.1	-	-	-
	Beef cattle	9.1	0.1						-	-	-
	Pig	63.6	2.0	0.5	0.1	-	-	-	-	-	-
	Goat	9.1	0.6	0.4	0.0	0.3	4.6	-	-	-	-
	Sheep	36.4	3.5	2.2	0.0	1.0	3.8	0.0	35.8	-	-
	Horse	18.2	0.2	0.0	0.1	-	-	-	-	-	-
	Poultry	63.6	42.7	34.1	0.0	-	-	-	-	3.85	-
	Bee	0.0	0.0	0.0	-	-	-	-	-	-	-
AA	Dairy cattle	0.0	-	-	-	-	-	-	-	-	-
	Beef cattle	0.0	-	-	-	-	-	-	-	-	-
	Pig	0.0	-	-	-	-	-	-	-	-	-
	Goat	0.0	-	-	-	-	-	-	-	-	-
	Sheep	0.0	-	-	-	-	-	-	-	-	-
	Horse	0.0	-	-	-	-	-	-	-	-	-
	Poultry	0.0	-	-	-	-	-	-	-	-	-
	Bee	0.0	-	-	-	-	-	-	-	-	-
SCM	Dairy cattle	40.0	79.2	71.4	0.0	3299.0	0.0	27571.4	-	-	-
	Beef cattle	20.0	10.0						-	-	-
	Pig	0.0	0.0	-	-	-	-	-	-	-	-
	Goat	0.0	0.0	-	-	-	-	-	-	-	-
	Sheep	20.0	730.0	320.0	0.0	128.0	0.0	2560.0	2920.0	-	-
	Horse	20.0	0.4	0.0	0.0	-	-	-	-	-	-
	Poultry	0.0	0.0	0.0	-	-	-	-	-	-	-
	Bee	0.0	0.0	-	-	-	-	-	-	-	-
SCCP	Dairy cattle	0.0	0.0	-	-	-	-	-	-	-	-
	Beef cattle	50.0	30.0	0.0	10.5	0.0	0.0	0.0	-	-	
	Pig	50.0	190.0	180.0	7.5	-	-	-	-	-	
	Goat	0.0	0.0	-	-	-	-	-	-	-	-
	Sheep	0.0	0.0	-	-	-	-	-	-	-	-
	Horse	0.0	0.0	-	-	-	-	-	-	-	-
	Poultry	0.0	0.0	-	-	-	-	-	-	-	-
	Bee	0.0	0.0	-	-	-	-	-	-	-	-
SCP	Dairy cattle	0.0	0.0	-	-	-	-	-	-	-	-
	Beef cattle	0.0	0.0	-	-	-	-	-	-	-	-
	Pig	0.0	0.0	-	-	-	-	-	-	-	-
	Goat	0.0	0.0	-	-	-	-	-	-	-	-
	Sheep	0.0	0.0	-	-	-	-	-	-	-	-
	Horse	0.0	0.0	-	-	-	-	-	-	-	-
	Poultry	0.0	0.0	-	-	-	-	-	-	-	-
	Bee	0.0	0.0	-	-	-	-	-	-	-	-

Source : JICA Study Team, 1994

Table 3.3.3-A3 Livestock Production per Head in the Study Area in 1993

Livestock	Number of samples (head)	Production per head							
		New born (Head)	Live weight(kg)	Raw milk (lit)	Yogurt (kg)	Cheese (kg)	Wool (kg)	Eggs (x1000)	Honey (kg)
Dairy cattle	435	0.9	-	4,007	11.3	318.9	-	-	-
Beef cattle	111	0.0	*	0	0.0	-	-	-	-
Pig	559	0.8	*	-	-	-	-	-	-
Sheep	4,431	0.5	-	24	-	4.6	3.5	-	-
Goat	99	0.9	-	170	-	6.4	-	-	-
Horse	32	0.1	-	-	-	-	-	-	-
Poultry	2,720	0.8	-	-	-	-	-	96.3	-
Bee(Family)	7	0.3	-	-	-	-	-	-	10

Source: JICA Study Team, 1994

Note : * data not yet available

Table 3.3.3-A4 Raising Cost of Livestock per Head in the Study Area in 1993

(Unit : Lei/Adult head, family)

Livestock	Mating cost	Feed cost	Hygienic cost	Castrat-ion cost	Employed labor cost	Total
Cattle	12,500	142,700	43,500	0	110,300	309,000
Pigs	700	32,000	1,600	300	3,700	38,300
Sheep	700	20,600	1,800	0	8,800	31,900
Goats	0	20,900	500	0	0	21,400
Horses	100	355,200	5,700	0	3,000	364,000
Poultry	0	3,600	300	0	0	3,900
Bee(Family)	0	-	0	0	0	-

Source: JICA Study Team, 1994

Table 3.3.3-A5 Farm Gate Prices of Livestock Products in the Study Area, 1993

(Unit : Lei)

Livestock	Live weight(kg)	Raw milk (L)	Yogurt (kg)	Cheese (kg)	Wool (kg)	Egg (kg)	Honey (kg)
Dairy cattle	1,173	204	700	3,000	-	-	-
Beef cattle	1,173	-	-	-	-	-	-
Pig	1,272	-	-	-	-	-	-
Sheep	1,144	253	-	1,090	-	-	-
Poultry	1,627	-	-	-	-	84	-
Goat	875	-	-	2,500	-	-	-
Horse	-	-	-	-	-	-	-
Bee(Family)	-	-	-	-	-	-	-

Source: JICA Study Team, 1994

Table 3.3.4-A1 Farming Conditions in the Study Area

Type of Farming	Number of Samples Surveyed	Average No. of Farm House-Holds Associated	Agricultural Labor Force Per Farming unit	Area Cultivated per Farming Unit in 1993 (ha)		Livestock Bred per Farming Unit In 1993 (heads)	
I	79 farm house-holds	1	Male :1.1 Female:1.2 Total :2.3 (Own labor)	Arable Pasture Meadow Vineyard Orchard Total	1.71 0.10 0.01 1.13 0.01 2.96	Cattle Pig Goat Sheep Horse Poultry	0.43 2.05 1.16 9.39 0.35 28.10
AAS	11 AAS	109 (Max.500) (Min. 2)	Male : 73 Female: 36 Total :109 (Own labor)	Arable Pasture Meadow Vineyard Orchard Total	87.63 0.06 0.00 0.86 0.07 88.62	Cattle Pig Goat Sheep Horse Poultry	0.54 2.00 0.64 3.45 0.18 42.73
AA	2 AA	205 (Max.310) (Min.100)	Male :107 Female: 98 Total :205 (Own labor)	Arable Pasture Meadow Vineyard Orchard Total	225.00 0.00 0.00 3.50 0.00 225.00	Cattle Pig Goat Sheep Horse Poultry	0.00 0.00 0.00 0.00 0.00 0.00
SCM	5 SCM	-	Male :317 Female: 97 Total :414 (Employed l)	Arable Pasture Meadow Vineyard Orchard Total	396.60 0.80 3.00 326.20 0.00 726.60	Cattle Pig Goat Sheep Horse Poultry	89.20 0.00 0.00 730.00 0.40 0.00
SCCP	2 SCCP	-	Male :5.0 Female:1.5 Total :6.5 (-)	Arable Pasture Meadow Vineyard Orchard Total	6.60 0.00 1.00 7.50 0.00 15.10	Cattle Pig Goat Sheep Horse Poultry	30.00 190.00 0.00 0.00 0.00 0.00
SCP	1 SCP	-	Male :101 Female: 56 Total :157 (Employed l)	Arable Pasture Meadow Vineyard Orchard Total	0.00 0.00 0.00 484.00 0.00 484.00	Cattle Pig Goat Sheep Horse Poultry	0.00 0.00 0.00 0.00 0.00 0.00

Source : JICA Study Team, 1994

Note: I: Individual farmers
AAS: Association of private farmers(families) without juritical personality
AA: Association of private farmers with juritical personality
SCM: Commercial company with double capital-state and private
SCCP: Commercial company with whole private capital
SCP: Research and production institution(experimental station)

Table 3.3.4-A2 Number of Farm Households/Farming Units in 19 Towns/Villages Related to the Study Area (1994)

No	Village	I	AAS	SCM	SCP	Total
1	Bolotesti	2,334	9			2,343
2	Brosteni	1,313				1,313
3	Cimpineanca	1,088		227		1,315
4	Garoafa	2,397	11	169		2,577
5	Fitionesti	1,493				1,493
6	Focsani	791		391	90	1,272
7	Jaristea	2,811	22	473		3,306
8	Movilita	2,822				2,822
9	Marasesti	911	28	1,251		2,190
10	Odobesti	1,254		615		1,869
11	Panciu	653	3	525	125	1,306
12	Pufesti	1,396	7	380		1,783
13	Paunesti	3,243		70		3,313
14	Ruginesti	2,722		302		3,024
15	Straoane	2,215	8			2,223
16	Racoasa	1,841	10		18	1,869
17	Soveja	1,732	22			1,754
18	Tifesti	2,662	12	404		3,078
19	Iresti	2,201	12			2,213
	Total	35,879	144	4,807	233	41,063
	(%)	(87)	(0)	(12)	(1)	100

Source: LO-Vrancea, 1994
Note : Abbreviation of Type of farming as same as Table 3.3.4-A1

Table 3.3.4-A3 Cropping Calender of Main Crops and Vegetables in the Study Area (1994)

Crop	Land preparation		Sowing		Harvesting		Varieties
	From	To	From	To	From	To	Used
Wheat	Sep. 22	Oct. 1	Oct. 2	Oct. 18	Jul. 15	Jul. 20	Ariesan Transilvania
Maize	Apr. 12	Apr. 17	Apr. 18	Apr. 24	Oct. 01	Oct. 09	Helga, Hs-225 T-200,P-2747
Sunflower	Mar. 27	Apr. 07	Apr. 03	Apr. 08	Aug. 27	Sep. 02	Romsun, Turso F-360,F-53
Sugar beet	Mar. 27	Mar. 27	Mar. 31	Mar. 31	Oct. 08	Oct. 12	Polirom
Potato	Mar. 29	Apr. 01	Apr. 06	Apr. 07	Sep. 03	Sep. 05	Desiree Ostara
Tomato	Apr. 14	Apr. 14	Apr. 22	Apr. 25	Jul. 18	Sep. 06	Bizon Timpurii
Onion	Apr. 01	Apr. 01	Apr. 04	Apr. 04	Aug. 07	Aug. 09	Cenda Tibucani

Source : JICA Study Team, 1994

Table 3.3.4-A4 Crop Production by Farming Type in the Study Area (1993)

(per farm household/farming unit)

Type of Farming	I			AAS			AA			SCM			SCCP			SCP		
Crop Cultivated	Area Cultivated (ha)	Production (kg)	Unit yield (kg/ha)	Area Cultivated (ha)	Production (kg)	Unit yield (kg/ha)	Area Cultivated (ha)	Production (kg)	Unit yield (kg/ha)	Area Cultivated (ha)	Production (kg)	Unit yield (kg/ha)	Area Cultivated (ha)	Production (kg)	Unit yield (kg/ha)	Area Cultivated (ha)	Production (kg)	Unit yield (kg/ha)
Wheat	0.67	2,430	3,651	0.39	1,392	3,569	0.96	3,063	3,191	111.40	429,400	3,855	0.00	0	0	0.00	0	0
Maize	0.97	4,965	5,113	0.33	908	2,752	0.00	0	0	30.00	63,400	2,113	0.00	0	0	3.83	4,167	1,087
Barley	0.00	0	0	0.05	118	2,360	0.00	0	0	34.60	137,200	3,965	0.00	0	0	0.00	0	0
Oats	0.00	0	0	0.00	0	0	0.00	0	0	10.00	38,000	3,800	0.00	0	0	0.00	0	0
Bean seeds	0.02	20	1,055	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Sugar beet	0.00	0	0	0.02	30	1,500	0.00	0	0	2.00	55,600	27,800	0.00	0	0	0.00	0	0
Sunflower	0.00	0	0	0.03	72	2,400	0.13	202	1,554	40.80	55,600	1,363	0.00	0	0	0.00	0	0
Potatoes	0.02	375	19,866	0.03	72	2,400	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Vegetables																		
- Tomatoes	0.00	66	20,115	0.00	2	-	0.00	0	0	0.00	0	0	0.10	250	1,250	0.00	0	0
- Cabbage	0.00	27	31,000	0.00	1	293	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
- Onion	0.00	32	10,100	0.00	0	-	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Pasture plants																		
- Perennial	0.13	760	5,856	0.01	86	8,600	0.00	0	0	50.80	1,417,000	27,894	1.00	20,000	10,000	0.50	2,500	5,000
- Annual	0.06	451	8,191	0.01	1	100	0.00	0	0	86.40	1,529,539	17,703	0.00	0	0	2.67	13,333	5,000
Fruit crops																		
- Grapevine	1.07	9,326	8,720	0.01	56	5,600	0.02	79	3,950	326.20	3,533,062	10,831	7.50	42,000	2,800	80.67	896,000	11,107
- Apple	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
- Sweet cherry	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
- Prune	0.01	59	5,536	0.00	4	-	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Total	2.95	-	-	0.88	-	-	1.11	-	-	692.20	-	-	8.60	-	-	87.67	-	-

Source : JICA Study Team, 1994

Table 3.3.4-A5 Labor Requirement for Main Crop Cultivation in the Study Area

(Unit : hr/ha)

Farming Type		I	AAS	AA	SCM	Average
Wheat	Land preparation	6.1	2.0	3.5	1.6	2.7
	Sowing	2.5	1.9	1.7	0.7	1.6
	Weeding	1.7	0.7	0.3	0.2	0.5
	Manuring	2.5	1.1	0.6	0.6	0.9
	Disease control	0.1	0.0	0.0	0.0	0.0
	Pest control	0.0	0.0	0.0	0.0	0.0
	Harvesting	5.5	1.5	1.4	1.4	1.7
	Transportation	2.5	1.5	0.9	0.8	1.2
	Dry/Cleaning	1.1	0.0	0.0	0.0	0.1
	Storing	3.4	0.0	0.5	0.0	0.4
	Total	25.5	8.8	8.9	5.2	9.1
Maize	Land preparation	5.7	2.6	5.8	1.6	3.6
	Sowing	2.1	1.9	1.0	0.7	1.5
	Weeding	85.0	70.8	0.3	1.8	43.1
	Manuring	9.1	0.6	0.3	0.3	1.6
	Disease control	0.0	0.0	0.0	0.0	0.0
	Pest control	2.0	0.1	0.0	0.2	0.3
	Harvesting	77.8	64.7	1.1	4.7	39.7
	Transportation	12.3	10.6	0.6	0.7	6.5
	Dry/Cleaning	13.3	0.1	0.0	0.0	1.5
	Storing	12.0	0.1	1.0	0.0	1.6
	Total	219.5	151.5	10.0	10.0	99.4
Grape vine	Autumn work	-	-	-	-	422.7
	Plowing	-	-	-	-	7.7
	Plant protection	-	-	-	-	16.3
	Manuring	-	-	-	-	4.0
	Spring work	-	-	-	-	251.4
	Harvesting	-	-	-	-	309.9
	Transportation	-	-	-	-	65.1
	Storing	-	-	-	-	9.4
	Total	-	-	-	-	1,086.6

Source : JICA Study Team, 1994

Table 3.3.4-A6 Production Cost of Crops in the Selected Farm Households/Farming Units in the Study Area in 1993

(Unit : Lei/ha)

Crop	Type of farming	No. of samples used	Seed cost	Fertilizer cost	Pesticide, insecticide cost	Herbicide cost	Other materials cost	Water cost	Plowing cost	Harvesting cost	Machine, tool cost	Depreci-ation cost	Repairing cost	Draft animal cost	Employed labor cost	Total	Percent age to maize
Wheat	I	49	45,053	33,681	3,856	12,219	6,255	492	16,034	53,505	1,123	1,061	2,012	55	3,621	178,969	
	AAS	7	38,769	32,476	0	2,732	1,742	0	6,513	67,638	349	120	153	0	87	150,580	
	AA	2	16,414	2,537	136	977	4,669	596	11,949	55,458	0	0	0	0	5,477	98,212	
	SCM	1	12,073	4,980	0	23,548	42	0	9,560	53,878	3,259	0	0	0	3,232	110,571	
	SCCP	1	31,143	21,429	2,857	3,571	21,429	0	20,314	64,286	0	16,943	0	0	37,714	219,686	
	Whole	60	22,859	14,024	193	10,493	2,145	178	9,542	58,613	1,383	175	122	2	3,033	122,744	(132%)
			(18.6%)	(11.4%)	(0.2%)	(8.5%)	(1.7%)	(0.1%)	(7.8%)	(47.8%)	(1.1%)	(0.1%)	(0.1%)	0.0	(2.5%)	(100%)	
Maize	I	65	14,076	30,653	4,136	1,400	4,772	118	15,953	30,285	2,070	1,284	1,878	460	32,753	139,837	
	AAS	11	3,055	2,556	15	0	1,686	10	9,133	13,401	25	63	127	127	1,878	32,077	
	SCM	1	11,891	4,931	0	1,737	123	0	15,133	105,667	21,367	0	0	0	64,873	225,722	
	SCCP	1	7,667	24,500	0	2,072	13,083	0	23,333	0	0	3,372	0	0	91,667	165,693	
	Whole	78	6,542	6,708	506	605	1,791	21	11,528	37,442	5,392	226	306	132	21,564	92,766	(100%)
			(7.1%)	(7.2%)	(0.5%)	(0.7%)	(1.9%)	(0.00)	(12.4%)	(40.4%9	(5.8%)	(0.2%)	(0.3%)	(0.1%)	(23.2%)	(100%)	
Barley	Mixed	(AAS : 2) (SCM :1)	14,102	5,708	0	25,886	808	0	8,812	67,247	3,883	0	0	0	3,348	129,793	
			(10.9%)	(4.4%)	(0.0%)	(19.9%)	(0.6%)	(0.0%)	(6.8%)	(51.8%)	(3.0%)	(0.0%)	(0.0%)	(0.0%)	(2.6%)	(100%)	(140%)
Oats	SCM	1	4,264	3,740	0	34,700	0	0	10,100	40,000	18,620	0	0	0	10,160	121,584	(131%)
			(3.5%)	(3.1%)	(0.0%)	(28.5%)	(0.0%)	(0.0%)	(8.3%)	(32.9%)	(15.3%)	(0.0%)	(0.0%)	(0.0%)	(8.4%)	(100%)	
Sugar beet	SCM	1	0	5,416	0	2,119	850	0	10,900	132,000	69,300	0	0	0	975	221,560	(239%)
			(0.0%)	(2.4%)	(0.0%)	(1.0%)	(0.4%)	(0.0%)	4.9	(59.6%)	(31.3%)	(0.0%)	(0.0%)	(0.0%)	(0.4%)	(100%)	
Sunflower	Mixed	(AAS : 2) (AA : 1) (SCM : 1)	2,345	1,390	0	1,009	775	0	8,634	35,129	17,795	0	0	0	7,205	74,284	(80%)
			(3.2%)	(1.9%)	(0.0%)	(1.4%)	(1.0%)	(0.0%)	(11.6%)	(47.3%)	(24.0%)	(0.0%)	(0.0%)	(0.0%)	(9.7%)	(100%)	
Potato	Mixed	(1 : 8) (AAS : 3) 11	115,340	23,037	48,168	0	15,288	3,822	15,476	37,435	5,236	1,571	2,618	5,236	3,141	276,366	(298%)
			(41.7%)	(8.3%)	(17.4%)	(0.0%)	(5.5%)	(1.4%)	(5.6%)	(13.5%)	(1.9%)	(0.6%)	(0.9%)	(0.9%)	(1.1%)	(100%)	
Vegetables	Mixed	(1 : 8) (AAS : 2)	68,310	11,761	77,746	0	25,000	10,563	36,493	38,028	0	0	7,042	0	126,761	401,704	(433%)
			(17.0%)	(2.9%)	(19.4%)	(0.0%)	(6.2%)	(2.6%)	(9.1%)	(9.5%)	(0.0%)	(0.0%)	(1.8%)	(0.0%)	(31.6%)	(100%)	
Grapevine	Mixed	47	0	6,565	257,879	654	26,409	11,962	3,574	111,557	3,318	44,967	9,508	129	176,509	653,031	(704%)
			(0.0%)	(1.0%)	(39.5%)	(0.1%)	(4.0%)	(1.8%)	(0.5%)	(17.1%)	(0.5%9	(6.9%9	(1.5%)	(0.0%)	(27.0%)	(100%)	

Source : JICA Study Team, 1994

Table 3.3.4-A7 Number of Agricultural Machinery Possessed by AGROMEC Stations in 19 Towns/Villages Related to the Study Area

Machinery	Number of machinery			Percentage to 1986 (%)		
	1986	1988	1990	1986	1988	1990
Tractor(Tractoare)	1,699	1,445	837	100	85	49
Trailing type plow	1,325	502	575	100	38	43
Harrow	0	0	0	-	-	-
Seeder(Semanatori)	317	263	235	100	83	74
Fertilizer machine	133	97	48	100	73	36
Pest control machine	0	0	0	-	-	-
Weeder(Cultivatoare)	315	398	147	100	126	47
Harvester	621	586	260	100	94	42
Combine harvester	402	405	205	100	101	51
Harvester pulled with tractor	146	130	28	100	89	19
Harvester for pasture plants	73	51	27	100	70	37

Source: DJS-Vrancea

Note : including 6 AGROMEC stations of Adjud, Panciu, Marasesti, Odbesti, Vidra and Chimpineanca.

Table 3.3.5-A1 Farm Income Status

(Unit : 10^3 Lei)

Cropping Acreage	Man Power	Crude Farm Income			Estimated Net Income	Off-farm Incomes	Total Income
		Crop	Livestock	Total			
2.96	2.3	1,352	562	1,914	1,165	987	2,152
Share by Sector		70.6%	29.4%	100%	54.1%	45.9%	100%

Note : All farms excluding state invested farms

1) Expenditure more than met by off-farm income : 46 %, 41 households
2) Expenditure roughly met by off-farm income : 12 %, 11 households
1) Expenditure met by farm and off-farm income : 25 %, 22 households
2) Expenditure never met by all annual income : 17 %, 15 households

Table 3.3.5-A2 Average Farm Gate Prices

(Unit : Lei)

Item	Unit	Price		Item	Unit	Price	
		1994	July 1994			1994	July 1994
Wheat	kg	130	230	Tomato	kg	50 - 150	150 - 250
Barley	kg	110	170	Cabbage	kg	100	159
Maize	kg	120	170 - 210	Milk	lit	25	30
Sugar Beet	kg	50	55	Pork	kg	1,500	2,000
Sunflower	kg	170	170 - 340	Egg	pcs	75	120

Source :

Table 3.3.5-A3 Agricultural Input Prices with 18% VAT

(Unit : Lei)

		Unit	Price		Unit	Price
Hire Price	Labour	day	5,000	NP Fertilizer	kg	350
	Tractor	ha	30,000	Insecticides	kg	21,800
	Combine	-	5 % of harvest	Herbicides	kg	18,200
Seed	Maize	kg	1,270	Fungicides	kg	6,720
	Other Grains	-	2.5 times of grains			
	Fodder	kg	3,500			

Source :

Table 3.3.5-A4 Agricultural Input Prices with 18% VAT as of End 1993

(Unit : Lei)

		Unit	Price			Unit	Price
Hire Price	Labour	day	5,200 - 6,100	Insecticides	Carbetox	kg	350
Fertilizer	Ammonium Nitrate	kg	178.2		Sinorstox	kg	21,800
	Super-phosphate	kg	358.4 - 433.7		(Meta) Sistox	kg	18,200
	Urea	kg	94.1		Furadan	kg	6,720
	Complex	kg	151.5 - 280.0	Herbicides	Diisocab	kg	4,418
Fungicides	Rudomil-plus	lit	36,500		Lasso	kg	11,290
	Captadin	lit	6,100		Brestan	kg	43,592
	Topzin M-70	lit	22,600		Vensar	kg	57,700

Source : Field survey of JICA Study Team

Table 3.3.5-A5 Cattle Market Auction Prices in Focsani

(Unit : Lei)

Item	Unit	Price	Remarks	Item	Price
Pig	head	160,000	120 kg	Wheat Bran	130
Pork	head	20,000	20 kg	Meslin	250
Calf	head	300,000	70 kg	Feed Corn	250
Horse	head	250,000	6 years	Goat Cheese	650
Cow	head	250,000	200 kg		
Steer	head	160,000	30 kg		
Sheep	head	25,000			

Table 3.3.5-A6 Retail Market Prices in Focsani and Bucharest

(Unit : Lei)

Category	Item	Unit	in Focsani		in Bucharest	Remarks
			July 1994	Nov. 1994 *	Nov. 1994 **	
Cereals	Maize Grain	kg	250	250		
	Wheat Bran	kg				
	Meslin Flour	kg				
	Maize flour	kg			500	
	Rice imported	kg		1,100		from China
Seed	Wheat	kg		650		for sowing
	Edible Pumpkin	kg		100		
Vegetables	Cabbage	kg		200	250 - 300	
	Onion	kg	900	700	800 - 1,100	
	Tomato	kg	150		1,500/2,000	
	Irish Potato	kg			400	
	Cucumber	kg	250		1,300	
	Carrot	kg			500 - 800	
	Radish	bundle			200	
	Green Bean	kg	850			
	Brinjal	kg	800			
	Piment	kg				
	Garlic	bulb			400 - 500	
	Pimet	g			0.5	
	Ciupera de Jera	kg			6,000	
	Fennel	bundle			500	
	Squash	kg	340			
	Mushroom	kg		2,000	3,000	
Fruits	Grape (Muscat)	kg		1,000/1,500	1,400/1,500	
	Pear	kg	300	600	3,000	
	Peach	kg	650			
	Apple (red)	kg	250	500		
	Apple (yellow)	kg		700		
	Apple Star King	kg			3,300	
	Apple red sour	kg			800/1,500	
	Melon	kg	1,500			
	Mandarin	kg		1,500	1,800	imported
	Lemon	kg		1,750	1,200/1,800	imported
	Banana	kg		1,800	1,500/1,600	imported
	Grapefruit	kg		1,500	1,500	imported
	Kiwifruit	kg			4,500/1,800	imported
	Orange	kg			1,300/2,600	
Beans	Kidney Bean	kg			1,000	dry
	Sunflower	kg			1,000	seed
Others	Egg	kg	125			
Processed	White Sugar	kg	910	1,630		
Food	Vegetable Oil	lit	900	1,200		imported
	Vinegar	lit	850			
	Olive Pickles			250		
	Wine	lit	930			
	Bulk Biscuit			3,800		
	Tomato Paste			7,500		
	Mastered			1,600		
	Honey of acacia	kg		4,600/5,500	6,000/10,000 *	* bottled
	Cabbage pickled	kg			900/1,800	
	Cottage Cheese	kg	3,000/3,500			
	Bread	loaf	160			
	Butter	kg	1,020			
	Jam	kg	2,750			
	Margarine	kg	900			

Source : JICA Study Team in 1994

Note : * in Focsani Central Market, a farmer selling his/her products at stall pays 2,000 Lei/day to Municipality for stall.

** Market at Piata Romana in Bucharest

Table 3.3.5-A7 Official Average Prices of Agricultural Products in Focsani as of September 1994

(Unit : Lei)

Item	Unit	Average Price	Item	Unit	Average Price
Cereals					
Wheat for food	kg	207.5	Wheat Flour	kg	55.8
Maize for food	kg	203.9	Maize Flour	kg	353.2
Barley & Rye	kg	219.5			
Vegetables					
Tomato	kg	421.8	Egg Plant	kg	742.2
Young Chili	kg	436.4	Winter Potato	kg	355.8
Bell Pimento	kg	603.5	Dry-bulb Onion	kg	925.9
Cucumber	kg	607.4	Dry Kidney Bean	kg	819.5
Celery	kg	857.7	Green Bean	kg	833.5
Red Beet Root	kg	500.0	Dried Garlic	kg	2,526.1
White Cabbage	kg	495.8	Bottled Gourd	kg	600.0
Red Cabbage	kg	742.2	Horse Radish	kg	961.9
Cauliflower	kg	1,670.5			
Fruit					
Apple	kg	498.6	Walnut	kg	1,060.7
Pear	kg	500.0	Fresh Prune	kg	344.9
Peach	kg	560.0	Table Grape	kg	376.6
Water Melon	kg	238.1	Allsaints-wort	kg	800.0
Yellow Melon	kg	198.0			
Flowers					
Carnation	flower	627.7	Chrysanthemum	bouquet	895.0
Live Cattle and Meat					
Heifer (younger than 18-month)	head	272,115.9	Heifer (older than 18-month)	head	322,730.7
Carcass pig (fed up to 2 months)	head	27,600.0	Calf meat (0.5 to 1.0 year)	kg	1,231.2
Colt (<3 years)	head	442,291.8	Colt (>3 years)	head	485,220.0
Adult Mutton	kg	1,200.0	Sheep/goat meat	kg	2,495.8
Beef	kg	1,252.5	Beef meat	kg	2,689.1
Pork	kg	2,068.6	Pork meat	kg	3,013.3
Chicken meat	fowl	6,722.2	Chicken meat	kg	2,494.8
Duck/duckling	fowl	6,166.6	Duck meat	kg	2,208.7
Turkey	fowl	20,000.0	Turkey	kg	2,500.0
Livestock Products					
Sweet milk	lit	500.0	Cow-milk cream	kg	2,062.9
Cow cheese salted	kg	3,600.0	Cow cheese sweet	kg	2,354.8
Sheep cheese	kg	4,192.3	Cottage cheese	kg	3,048.6
Hen's egg	pcs	144.0	Beehive honey	kg	3,781.6

Source : Vrancea District Agricultural Office

Table 3.3.5-A8 Provisional Farming Cost Structure

(Unit : 10^3 Lei / ha)

Crop	Area	Yield t / ha	Total Cost	Seed Cost	Fertilizer Cost	Chemical Cost	Labour Cost *	Machinery Cost	Other Cost	
Wheat	SA	2.3	279	56.3	14.0	38.2	18.6	111.8	40.0	
	R	1.8	250	70.0	27.5	22.5	10.0	107.5	12.5	
	C	3.2	573	16.6	15.7	11.2	3.1	21.1	32.3	
Maize	SA	3.0	145	20.9	30.7	5.5	18.1	31.8	38.0	
	R	3.5	190	35.0	30.0	9.5	25.0	90.0	0.5	
	C	3.6	781	4.2	12.9	17.8	1.0	30.0	34.1	
Barley	SA	2.4	209	14.1	5.7	0.0	3.2	143.5	42.1	
	R	2.0	230	60.0	28.0	22.0	10.0	90.0	20.0	
	C	3.8	509	14.5	12.4	11.4	4.1	26.3	31.3	
Sunflower	SA	1.5	169	10.4	47.6	1.8	7.4	60.7	41.1	
	R	1.5	170	15.0	30.0	10.0	25.0	88.0	2.0	
	C	1.6	534	1.9	17.7	11.4	1.5	34.1	33.4	
Sugar Beet	SA	15.7	280	7.0	5.4	2.1	1.1	210.6	54.1	
	C	19.0	1,048	1.3	11.2	27.3	12.3	17.3	30.6	
Potato	SA	12.8	1,745	345.9	23.0	48.2	21.2	38.0	1,268.7	**
	C	12.0	1,610	253.0	24.5	17.9	20.5	38.5	1,255.6	**
Gape	SA	605	443	56.3	14.0	85.7	16.4	20.6	250.0	
	E	11.5	624	56.3	25.2	185.0	134.6	41.0	181.9	
Vegetables	SA	15.2	1,923	48.8	49.5	45.5	127.7	43.0	1,609.3	**

Source : JICA Study Team Farm Survey and interview survey results at ROMCEREAL and winery. An estimation made for country average at large-scale mechanized farming.

Notes : SA : Study Area C : Romanian average E : Commercial farm
R : estimated for 1994 crop by ROMCEREAL, Focsani
* Labour cost listed above refers to hired or paid labour
** Cost estimation for vineyard includes initial cost for vineyard establishment, i.e. seedling, supporting sticks and wire cable but without irrigation facilities. Cost of vegetables and potatoes include sales tax, marketing cost and farm tax.

Table 3.3.5-A9 Estimated Net Income by Crop

(Unit : 10^3 Lei / ha)

Item	Wheat	Maize	Barley	Sunflower	Sugar beet	Potatoes	Grape	Vegetables
Primary	499	338	411	560	943	3,888	1,110	4,866
By-Products	18	31	19	0	19	0	0	0
Total Income	517	369	430	560	962	3,888	1,110	4,866
Cost	279	145	209	169	280	1,745	443	1,923
Gain/ha	220	224	221	391	682	2,143	667	2,943
Profit in %	43	61	51	70	71	55	60	60

Source : JICA Study Team field survey and estimate

Table 3.3.5-A10 Profitability of Farm Management Specialized in Vineyard

(Unit : 10^3 Lei / ha)

Sampled Farm No.	No. 21	No. 40	No. 42	No. 46	No. 47	Average
Area (ha)	81.0	3.5	3.5	484.0	1,550.0	-
Grape Production (ton)	1,070.0	27.0	37.1	5,376.0	17,031.0	-
Raw Grape Yield (ton/ha)	13.2	7.7	10.6	11.1	11.0	10.7
Unit Price	96.0	100.0	100.0	110.0	92.0	99.6
Production Value	102,720.0	2,700.0	3,710.0	591,360.0	1,566,852.0	-
Unit Production Value	1,268.1	771.4	1,060.0	1,221.8	1,010.9	1,066.5
Production Cost per ha						
Plant Protection	800.0	85.7	91.4	115.3	278.3	274.1
Farming Materials	50.5	28.6	22.9	5.0	32.2	27.9
Inter-plowing	10.0	5.7	7.1	3.5	2.4	5.7
Harvesting	49.5	60.0	57.1	136.5	111.6	82.9
Machinery/repairing	12.8	57.1	62.9	3.9	15.1	30.4
Hired Labour	16.1	157.1	180.0	109.4	209.8	134.5
Water Charge	0.0	0.0	0.0	2.5	15.0	3.5
Fertilizer	0.0	0.0	0.0	0.0	9.3	1.9
Amortization	0.0	0.0	0.0	26.2	55.3	16.3
Total Cost per ha	938.9	394.2	421.4	402.3	729.1	577.2
Net Production Value	329.2	377.2	638.6	819.5	281.8	489.3
Net / Gross Ratio	26.0	48.9	60.2	67.1	27.9	46.0

Table 3.3.5-A11 Justification of Hire Machinery by Crop

(Unit : 10^3 Lei / ha)

Item	Wheat	Maize	Barley	Sunflower	Sugar beet	Potatoes	Grape	Vegetables
Gain / ha	220	224	221	391	682	2,143	667	2,943
Labour-1 /ha	38	146*	8	11	12	85	720	512
Labour-2 /ha	19	18	3	7	1	21	16	128
Difference	19	128	5	4	11	64	704	384
Machinery	112	32	144	61	211	38	43	21
Difference	**- 93**	96	**- 139**	**- 57**	**- 200**	26	661	363

Source : JICA Study Team field survey and estimate

Notes : Labour-1 & Labour-2 are hired or paid labour cost where labour-1 is estimated by 5.3 X man-day/ha/crop

* currently manual cropping

- 93 bold figures in minus indicate that no room for further mechanization can be identified.

Table 3.3.6-A1 Land Tenure and Land Use in Vrancea District in 1994

Land Use	Total Area	Public Area	Land Tenure in Private Area				
			State Property	Private Property			
				Total	Individual	Commercial Company	Association
1 Arable Land	146,999	1,552	17,859	127,588	111,197	2,007	14,384
2 Pasture	44,751	36,596	1,324	6,831	6,821	10	0
3 Meadow	30,356	681	240	29,435	29,431	4	0
4 Vineyard	28,735	591	7,008	21,136	20,423	243	470
5 Orchard	4,487	1,130	118	3,239	2,787	150	302
Agricultural Land Total	255,328	40,550	26,549	188,229	170,659	2,414	15,156
Ratio (Total Area =100%)	100.0%	15.9%	10.4%	73.7%	-	-	-
Ratio (Private Area =100%)	-	-	-	100.0%	90.7%	1.3%	8.1%
6 Forest	190,988	176,267	86	14,635	14,507	128	0
7 Water Surface	14,462	13,018	969	475	472	3	0
8 Roads	8,947	8,329	582	36	1	35	0
9 Building	9,697	2,663	575	6,459	6,391	68	0
10 Unproductive	6,281	4,400	591	1,290	1,289	1	0
Non-agricultural Land Total	230,375	204,677	2,803	22,895	22,660	235	0
District Total	485,703	245,227	29,352	211,124	193,319	2,649	15,156
Ratio (Total Area =100%)	100.0%	50.5%	6.0%	43.5%			
Ratio (Private Area =100%)				100.0%	91.6%	1.3%	7.2%

Source : Land Office, Vrancea (OCOT-Vrancea)

Note : Individual includes informal association of private farmers, Association : formal association of private farmers, Commercial Company : SCM (commercial company with double capitals of state and private) and SCCP (commercial company with whole private capital)

Table 3.3.7 - A1 Goods Transport by Means (1/2)

(Unit : 103 ton)

Means	Year	Carried Goods				
		Total	Transport of Own & Local Use	Transport of General Use		
		A=B+C	B	C	Weight	Annual Growth
Total	1980	2,202,884	1,425,944	776,940	100.0%	
	1985	2,536,083	1,825,021	711,062	100.0%	
	1986	2,729,543	2,011,901	717,642	100.0%	0.9%
	1987	2,821,063	2,014,150	806,913	100.0%	12.4%
	1988	2,873,501	2,076,707	796,794	100.0%	-1.3%
	1989	2,826,326	2,033,723	792,603	100.0%	-0.5%
	1990	2,216,354	1,732,579	483,775	100.0%	-39.0%
	1991	1,179,168	874,154	305,014	100.0%	-37.0%
	1992	854,037	642,280	211,757	100.0%	-30.6%
	1993			171,695	100.0%	-18.9%
Railway Transport	1980			274,606	35.3%	
	1985			283,400	39.9%	
	1986			306,618	42.7%	8.2%
	1987			303,771	37.6%	-0.9%
	1988			315,163	39.6%	3.8%
	1989			306,302	38.6%	-2.8%
	1990			218,828	45.2%	-28.6%
	1991			146,273	48.0%	-33.2%
	1992			111,419	52.6%	-23.8%
	1993			98,961	57.6%	-11.2%
Motor Transport	1980			451,272	58.1%	
	1985			362,196	50.9%	
	1986			333,267	46.4%	-8.0%
	1987			420,203	52.1%	26.1%
	1988			385,059	48.3%	-8.4%
	1989			382,342	48.2%	-0.7%
	1990			201,783	41.7%	-47.2%
	1991			112,059	36.7%	-44.5%
	1992			65,193	30.8%	-41.8%
	1993			45,291	26.4%	-30.5%
River Transport	1980			12,338	1.6%	
	1985			18,400	2.6%	
	1986			22,314	3.1%	21.3%
	1987			24,086	3.0%	7.9%
	1988			33,432	4.2%	38.8%
	1989			37,370	4.7%	11.8%
	1990			12,044	2.5%	-67.8%
	1991			8,249	2.7%	-31.5%
	1992			6,198	2.9%	-24.9%
	1993			7,074	4.1%	14.1%
Sea Transport	1980			16,206	2.1%	
	1985			25,726	3.6%	
	1986			30,906	4.3%	20.1%
	1987			29,967	3.7%	-3.0%
	1988			33,910	4.3%	13.2%
	1989			35,933	4.5%	6.0%
	1990			27,596	5.7%	-23.2%
	1991			22,316	7.3%	-19.1%
	1992			14,133	6.7%	-36.7%
	1993			6,918	4.0%	-51.1%

Table 3.3.7 - A1 Goods Transport by Means (2/2)

(Unit : 103 ton)

Means	Year	Carried Goods				
		Total	Transport of Own & Local Use	Transport of General Use		
		A=B+C	B	C	Weight	Annual Growth
Air Transport	1980			33	0.0%	
	1985			29	0.0%	
	1986			36	0.0%	24.1%
	1987			31	0.0%	-13.9%
	1988			31	0.0%	0.0%
	1989			51	0.0%	64.5%
	1990			37	0.0%	-27.5%
	1991			* 13	0.0%	-64.9%
	1992			47	0.0%	261.5%
	1993			35	0.0%	-25.5%
Transport through Petroleum Pipeline	1980			22,485	2.9%	
	1985			21,311	3.0%	
	1986			24,501	3.4%	15.0%
	1987			28,855	3.6%	17.8%
	1988			29,199	3.7%	1.2%
	1989			30,605	3.9%	4.8%
	1990			23,487	4.9%	-23.3%
	1991			16,104	5.3%	-31.4%
	1992			14,767	7.0%	-8.3%
	1993			13,416	7.8%	-9.1%

Note : * Transport by airships rented to some foreign agencies is not included.
Source : "Quarterly Statistical Bulletin, No.4, 1993" & "Romanian Statistical Yearbook 1993" by National Commission for Statistics

Table 3.3.8 - A1 Food Processing Industry in Romania and Vrancea District

Items	Description		(A) Romania	(B) Vrancea	(B) / (A) (%)
Number of Enterprises at the end of 1992 (from Industrial Activity)	Industry	Total	2,920	44	1.51
		Food & Drinks	541		
		Tobacco	1		
	of which	Public Industry	1,817	28	1.54
		Co-operative Industry	727	11	1.51
Average Number of Employees in 1992 (from Industrial Activity)	Industry	Total	3,032,816	28,519	0.94
		Food & Drinks	214,289		
		Tobacco	7,905		
	of which	Public Industry	2,782,805	22,393	0.80
		Co-operative Industry	174,437	1.935	-
Average Number of Employee (thousand, in 1992)	Employees	Total	3,183.10		
		of whom Workers	2,763.10		
	Food & Drinks		231.6		
		of whom Workers	204.5		
	Tobacco		5.7		
		of whom Workers	4.8		
Number of Employees by Sex on December 31, 1992	Employees	Total	3,107.80		
		Food & Drinks	237.7		
		Tobacco	5.7		
	of whom	Private Sector	70.5		
		Food & Drinks	13.1		
		Tobacco	-		
	Men	Total	1,795.70		
		Food & Drinks	113.8		
		Tobacco	2.3		
	Women	Total	1,312.10		
		Food & Drinks	123.9		
		Tobacco	3.4		
	of whom Workers - Total		2,694.30		
		Food & Drinks	209		
		Tobacco	4.9		
	of whom	Private Sector	61.6		
		Food & Drinks	11.5		
		Tobacco	-		
	Men	Total	1,556.9		
		Food & Drinks	100.1		
		Tobacco	1.9		
	Women	Total	1,137.4		
		Food & Drinks	108.9		
		Tobacco	3.0		
Industrial Production (million Lei in Current Prices)	Industry	Total	6,725,527		
		Food & Drinks	990,886		
		Tobacco	27,664		
	of which	Public Industry	6,485,409		
		Cooperative Industry	106,006		
		Private Sector	63,669		
	Structure (%)	Total	100.0		
		Food & Drinks	14.7		
		Tobacco	0.4		
Retail Trade Units on December 31,1992	Total		136.543		
	of which	Public Cooperative Shops - Total	52,055	752	1.44
		Shops - Total	47,077	663	1.41
		Food	17,433	193	1.11
		Non-food	18,013	181	1.00
		Universal & Mixed	11,631	289	2.48
		Kiosk - Total	4,978	89	1.79
		Food	3,184	63	1.98
		Others	1,794		
	of which	Private Trade	84,488	718	0.85
Fixed Assets of Industry (billion Lei in Current Prices)	Total		14,392.0		
		Food & Drinks	825.0		
		Tobacco	6.7		
	Percent Distribution - Total		100.0		
		Food & Drinks	5.7		
		Tobacco	0.1		

Source : "Romanian Statistical Yearbook 1993" by National Commission for Statistics

Table 3.3.8 - A2 Long-Term Trend of Industry in Romania (1/2)

Description		1980	1985	1986	1987	1988	1989	1990	1991	1992
Gross Domestic Product (million Lei at Current Price)	Total	616.9	817.4	838.6	845.1	857.0	800.0	857.9	2,198.9	5,982.3
	Industry	332.3	445.6	475.5	477.0	471.7	433.2	435.1	952.5	2,673.9
	Agriculture & Forestry	78.0	114.3	106.8	103.4	115.6	113.3	155.2	412.2	1,130.2
	Trade	36.4	39.9	39.5	43.2	46.9	51.2	58.0	310.5	790.0
	Structure % - Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Industry	53.9	54.5	56.7	56.4	55.0	54.2	50.7	43.3	44.7
	Agriculture & Forestry	12.6	14.0	12.7	12.2	13.5	14.2	18.1	18.7	18.9
	Trade	5.9	4.9	4.7	5.1	5.5	6.4	6.8	14.1	13.2
Indices of Gross Domestic Product (1980=100)	Total	100.0	116.8	119.6	120.6	120.0	113.0	106.7	92.9	80.3
	Industry	100.0	118.9	126.3	127.2	122.3	115.7	100.1	85.4	71.7
	Agriculture & Forestry	100.0	112.3	104.4	94.2	102.8	96.8	111.6	102.0	89.7
	Trade	100.0	102.3	100.1	100.8	108.4	113.0	119.9	93.9	77.6
Gross Domestic Product per Capita (Lei)		27,787	35,967	36,741	36,842	37,173	34,556	36,966	94,841	262,508
Indices of GDP per capita (1980=100)		100.0	114.1	116.3	116.7	115.5	108.4	102.1	89.0	79.3
Employment of National Economy (thousand)	Total	10,350.1	10,586.1	10,669.5	10,718.6	10,805.4	10,945.7	10,839.5	10,785.8	10,458.0
	Industry	3,678.7	3,927.8	3,978.4	4,013.8	4,064.6	4,169.0	4,015.1	3,817.4	3,300.9
	Agriculture	3,048.1	3,020.8	3,018.9	3,017.3	3,024.2	3,012.3	3,056.4	3,094.7	3,361.6
	Forestry	39.5	38.7	42.6	41.6	42.7	44.0	40.5	38.4	80.6
	Trade	619.9	617.4	619.9	633.0	635.4	648.9	678.5	871.9	753.9
	Structure % - Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Industry	35.5	37.1	37.3	37.4	37.6	38.1	37.0	35.4	31.6
	Agriculture	29.4	28.5	28.3	28.2	28.0	27.5	28.2	28.7	32.1
	Forestry	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8
	Trade	6.0	5.8	5.8	5.9	5.9	5.9	6.3	8.1	7.2
Average Number of Employees of The National Economy (thousand)	Total	7,340.00	7,661.30	7,751.90	7,790.00	7,842.60	7,997.10	8,102.20	7,389.50	6,525.80
	Industry	3,329.20	3,583.70	3,637.90	3,687.40	3,698.60	3,799.40	3,861.60	3,614.70	3,183.10
	(of whom Food)	(228.0)	(223.4)	(220.5)	(219.1)	(218.3)	(230.3)	(258.7)	(249.0)	(231.6)
	Agriculture	550.6	612.9	613.3	593.1	609.6	601.6	640.0	592.3	534.4
	Forestry	53.1	55.4	60.1	55.6	58.9	59.1	53.5	46.0	92.4
	Trade	624.6	623.7	626.8	635.8	635.5	643.3	656.4	563.1	342.7
	Structure % - Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Industry	45.4	46.8	46.9	47.3	47.2	47.5	47.7	48.9	48.8
	Agriculture	7.5	8.0	7.9	7.6	7.8	7.5	7.9	8.0	8.2
	Forestry	0.7	0.7	0.8	0.7	0.8	0.7	0.7	0.6	1.4
	Trade	8.5	8.1	8.1	8.2	8.1	8.0	8.1	7.6	5.3

Table 3.3.8 - A2 Long-Term Trend of Industry in Romania (1/2)

Description		1980	1985	1986	1987	1988	1989	1990	1991	1992
Indices of Industrial Production (1980=100)	Total	100	120	129	132	136	133	108		
	of which Food	100	108	112	121	121	121	113		
Structure of Industrial Production(%)	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
	of which Food	12.8	11.4	11.0	11.5	11.2	11.6	12.0	12.8	
Indices of Labour Productivity per Employee	Total	100	121	129	132	135	129	104	81.7	70.8
	of which Food	100	127	134	145	144	143	116	71.3	60.5
Number of Industrial Enterprises (end of year)	Total	1,752	1,913	2,048	2,072	2,091	2,102	2,241	2,510	2,920
	Public Property	1,334	1,456	1,520	1,526	1,532	1,541	1,683	1,770	1,817
	National Industry	1,321	1,418	1,454	1,460	1,465	1,474	1,612	1,712	1,759
	Local Industry	13	38	66	66	67	67	71	58	58
	Cooperative Property	418	457	528	546	559	561	558	740	727
	Mixed Property	...	...	...	...	...	...	...	...	35
	Private Property	-	-	-	-	-	-	-	-	341
Average Number of Employees (thousand)	Total	3,198.10	3,504.00	3,573.70	3,594.80	3,606.70	3,690.20	3,701.90	3,361.10	3,032.80
	Public Property	2,896.60	3,180.60	3,224.10	3,240.60	3,249.00	3,325.90	3,365.30	3,083.80	2,782.80
	National Industry	2,880.50	3,125.00	3,156.00	3,167.50	3,171.30	3,245.60	3,297.50	3,052.50	2,762.20
	Local Industry	16.1	55.6	68.1	73.1	77.7	80.3	67.8	31.3	20.6
	Cooperative Property	301.5	323.4	349.6	354.2	357.7	364.3	336.6	277.3	174.4
	Mixed Property	...	...	...	...		...	...	...	30.8
	Private Property	-	-	-	-		-	-	-	44.8

Source: Anuarul Statistic Al Romaniei 1993, Anuarul Statistic Al Romaniei 1992, & Quakerly Statistical Bulletin No.4, 1993.

Table 3.3.8 - A3 Number of Registered Firms in National Trade Register Office

Field	Type of Ownership	Romania		Vrancea District		Ratio (B)/(A)
		Number (A)	Ratio	Number (B)	Ratio	
1 Food Industry	State Ownership	1,615	1.1%	17	2.4%	1.05%
	Private + Mixed	150,213	98.9%	686	97.6%	0.46%
	Sub-Total	151,828	100.0%	703	100.0%	0.46%
2 Drinks Industry	State Ownership	605	0.7%	8	1.8%	1.32%
	Private + Mixed	85,764	99.3%	429	98.2%	0.50%
	Sub-Total	86,351	100.0%	437	100.0%	0.51%
3 Total	State Ownership	2,220	0.9%	25	2.2%	1.13%
	Private + Mixed	235,959	99.1%	1,115	97.8%	0.47%
	Grand-Total	238,179	100.0%	1,140	100.0%	0.48%

Note: Effective at the End of June 1994
Source: National Register Trade Office, The Chamber of Commerce and Industry of Romania

Table 3.3.9-A1 Major Agricultural Supporting Organizations

Name of Supporting System	Location	Function	Managed by
Banca Agricola Focsani Agents: 2 in Focsani,1 in Panciu, 1 in Adjud	Focsani	Credit Supply	S.A.
APRO (MILCOV) Cimpineanca	each village/town	Inputs Supply	S.A.
AGROSEM Vrancea	Focsani	Certified Seed	S.A.
ROMCEREAL Vrancea	Marasesti Focsani	Buyer of Grain Grain Storage	S.A.
AGROMEC Panciu, etc.	11, of which 5 in Study Area	Rental Machinery	Privatized
Centre Agricole (District)	Focsani	Extension	Public
Veterinary Offices	each village/town	Animal Health	Public
Weekly held Tric (Market)	Focsani	Livestock Trade	Public

Source: DO

Table 3.3.9 - A2 Rough Profile of Agricultural Bank

Total Amount of Fund:	June 30.1993 (starting)	3 billion Lei
	June 30.1994 (present)	33 billion Lei
Total Amount of Agricultural Loan (70% of Fund)		23 billion Lei
of which; loan to construction/trading industry		10 billion Lei
loan to association/S.C.C.P/S.C.M		10 billion Lei
loan to individual viable farmers		3 billion Lei
Current Annual Loan Interest Rate :	Agriculture Loan	50%
	Animal Fatting Loan	70%
	Agro-industry Loan	90%
Credit Dealing Agents in Vrancea District:	2 agents in Focsani 1 agent in Panciu 1 agent in Adjud	
Terminal Offices located in every commune	59 terminal offices	
Farmers having account in Agricultural Bank (45%)		10,000
Number of Cash/Borrowing Account:	21,000,000 Lei to 6,000 Lei	
Average loan amount per account:	3.5 million Lei	

Source: JICA Survey Team, 1994

Table 3.3.10 - A1 Number of Farms by Farming Type

Farming Type	Romania		Vrancea District		Study Area	Sampled Farm
	Dec.93	Jul.94	Dec.93	Jul.94	Jun.94	Jun.94
S.C.M.	797	4,054	12	38	9	5
AAS+AA	13,772	16,555	179	284	16	11+2
S.C.C.P.	28	374	44	90	4	2
S.C.P.	6,402	4,566	-	-	4	1
I.	419,736	-	89,586	-	32,650	79

Source: MAF

Table 3.3.10 - A2 Average Acreage by Farming Type

Farming Type	Romania		Vrancea District		Study Area		Sampled Farm	
	Area	Member	Area	Member	Area	Member	Area	Member
S.C.M.	447 ha	185	436 ha	236	1.012 ha	187	726 ha	414
AAS+AA	113 ha	45	125 ha	71	147 ha	169	157 ha	157
S.C.C.P.	227 ha	92	31 ha	23	-	-	15 ha	(7)
S.C.P.	-	-	-	-	-	-	484 ha	157
I.	2.3 ha	1	1.6 ha	1	1.7 ha	1	3.0 ha	1

Source: MAF

Table 3.3.11-A1 Population, Number of Households and Private Land Use in the Study Area

NO.	Town and Village	Number of Households		Population				
		Total	Farm	Total	Farmers Working in Active			
					Total	in SCM	in AA & AAS	in Private Farm
1	RUGINESTI	1,675	1,675	4,690	2,800	0	2	2,800
2	PAUNESTI	2,500	2,500	7,548	3,800	200	0	3,800
3	PUFESTI	1,266	1,266	3,848	2,611	100	22	2,611
4	MOVILITA	1,650	1,650	4,657	2,200	15	85	2,115
5	STRAOANE	1,600	1,600	4,800	2,000	300	0	2,000
6	FITIONESTI	1,237	1,237	3,381	1,960	40	0	1,960
7	PANCIU	3,300	1,830	10,016	4,740	770	12	4,728
8	TIFESTI	1,975	1,975	5,264	1,500	20	0	1,500
9	BOLOTESTI	2,056	2,056	4,612	1,751	0	0	1,751
10	MARASESTI	4,234	2,100	14,336	3,200		2,560	3,200
11	ODOBESTI	2,740	1,210	8,572	920	327	78	920
	Total	24,233	19,099	71,724	27,482	1,772	2,759	27,385
	%	100.0	78.8		100.0	6.4	10.0	99.6

NO.	Town and Village	Acreage of Farm Land and Farmers by Farming Types							Percentage of Acceptance	
		SCM			AA, AAS			Private Farm		
		Number of Farm	Total Acreage	Number of Farmers	Number of Farm	Total Acreage	Number of Farmers	Total Acreage	Certificate	Title of Property
								ha	%	%
1	RUGINESTI	0	0	0	2(Pigs)	0	2	3,213	100.0	25.0
2	PAUNESTI	0	0	200	0	0	0	4,521	100.0	20.0
3	PUFESTI	0	0	100	1	48	22	2,179	100.0	48.0
4	MOVILITA	0	0	15	1	120	85	2,671	100.0	18.0
5	STRAOANE	0	0	300	0	0	0	3,252	95.0	12.0
6	FITIONESTI	0	0	40	0	0	0	2,594	90.0	0.0
7	PANCIU	1	2,850	870	2	340	12	5,180	100.0	0.7
8	TIFESTI	3	1,200	20	0	0	0	4,040	98.0	16.2
9	BOLOTESTI	0	0	0	0	0	0	1,028	85.0	1.0
10	MARASESTI	1			9	1,800	2,500	2,622	100.0	12.6
11	ODOBESTI	5		327	1	42	78	1,350	100.0	20.6

Source : Interview survey for Mayors, JICA Team, 1994

Table 3.3.11-A2 Drinking Water Supply in the Study Area

NO.	Town and Village	The Sea Level of Residential Quarter of Village and Town	Type of Water Supply: Network Supply Existence	Network Supply % of Families Used	Deep Well Number	Deep Well % of Families Used	Others(Shallow Well, Lake Water) Number	Others(Shallow Well, Lake Water) % of Families Used
		m		%		%		%
1	RUGINESTI	170	15km	60	50	40	0	0
2	PAUNESTI	270	10km	44	200	56	0	0
3	PUFESTI	85	no	0	many	80	many	20
4	MOVILITA	250	32km	indistinct	6	indistinct	Lake	indistinct
5	STRAOANE	320	19km	13	30	87	0	0
6	FITIONESTI	250	8km	25	many	75	0	0
7	PANCIU	250	70km	100	0	0	0	0
8	TIFESTI	160	15km	40	5	60	0	0
9	BOLOTESTI	140	indistinct	100	0	0	0	0
10	MARASESTI	60	18km	90	indistinct	10	0	0
11	ODOBESTI	140	indistinct	100	0	0	0	0

NO.	Town and Village	The Sea Level of Residential Quarter of Village and Town	Water Quality (Good or Not)	Water Quantity (Short or Enough)	*% of Farmers Replied Short	Remarks
		m			%	
1	RUGINESTI	170	good	Very short	71	Network can't use in this summer due to drought of water source.
2	PAUNESTI	270	good	Very short	100	Network supplies only 3 days a week due to short supply of electricity.
3	PUFESTI	85	good	Enough	83	
4	MOVILITA	250	good, lake: bad	Very short	100	Network supplies in 1~3 months due to short money for electric fees. Some persons are bringing every day from the lake 2~3km far.
5	STRAOANE	320	good	Very short	67	Network can't supply due to breakage of pump.
6	FITIONESTI	250	good	Short	80	
7	PANCIU	250	good	Short	82	Water are introducing from two lakes. There are no funds to introduce further.
8	TIFESTI	160	good	Short	33	Ground water is abundant 210m deep, but there are no funds.
9	BOLOTESTI	140	good	Short	33	Ground water is abundant 120m deep, but there are no funds.
10	MARASESTI	60	good	Enough	80	Water of deep well used 10 % of families is short
11	ODOBESTI	140	good	Short		

Source : Interview survey for Mayors, JICA Team, 1994

* Source : Hearing survey for the 100 farmers, JICA Team, 1994

Table 3.3.11-A3 Life Environment in the Study Area

(Unit: %)

NO.	Town and Village	Spread Rate (Private)								Energy Sources			Type of Toilet
		Black & White TV	Color TV	Electric Washing Machine	Electric Refriger-ator	Motor-cycles	Trucks	Cars	Tractors	Lighting	Cooking	Heating	
1	RUGINESTI	60.0	12.0	60.0	60.0	1.0	0.5	5.0	1.0	E	BG:70%, W: 30%	W	A:10%,B:70%, C:20%
2	PAUNESTI	70.0	8.0	40.0	18.0	0.4	0.5	10.0	3.4	E	BG:12%, W: 88%	W	A:14%,B:12%, C:84%
3	PUFESTI	34.0	6.0	70.0	63.0	0.1	6.0	6.0	0.1	E	BG:50%, W: 50%	W	A:0%,B:10%, C:90%
4	MOVILITA	70.0	3.0	48.0	48.0	0.1	0.2	10.4	3.0	E	BG:20%, W: 80%	W	A:20%,B:3%, C:77%
5	STRAOANE	63.0	6.0	9.0	31.0	3.0	0.3	11.0	2.0	E	BG:20%, W: 80%	W	A:0%,B:80%, C:20%
6	FITIONESTI	20.0	16.0	26.0	45.0	1.0	0.5	12.0	3.0	E	BG:30%, W: 70%	W	A:12%,B:24%, C:64%
7	PANCIU	60.0	30.0	70.0	70.0	1.5	0.4	45.0	1.5	E	E: 20%,BG:70%, W: 10%	NW:65%,W:35%	A:80%,B:0%, C:20%
8	TIFESTI	80.0	20.0	50.0	100.0	0.5	0.8	20.0	5.0	E	BG:80%, W: 20%	W	A:20%,B:0%, C:80%
9	BOLOTESTI	90.0	5.0	50.0	90.0	1.0	-	7.0	-	E	W	W	A:0%,B:0%, C:100%
10	MARASESTI	80.0	25.0	80.0	70.0	2.0	0.2	8.0	0.3	E	BG:80%, W: 20%	NW: 40%, W: 60%	A:40%,B:10%, C:50%
11	ODOBESTI	95.0	5.0	95.0	95.0	7.0	0.5	18.0	-	E	BG:85%, W: 15%	NW: 30%, W: 70%	A:48%,B:0%, C:52%
	Average	65.6	12.4	54.4	62.7	1.6	1.0	13.9	2.1	-	-	-	-

Source : Interview survey for Mayors, JICA Team, 1994

Note. Energy source E: electricity, BG: butane gas, W: woods, NW: network of heated water.

Type of toilet A: flush toilet, B: toilet dipping up night soil, C: toilet dug only a hole in the ground

Table 3.3.11-A4 Insufficient Things and the Reasons

NO.	Items	% of Expecting Households	Reasons
1	Car & Truck	38.7	insufficient money
2	Tractor U650	25.3	insufficient things and money
3	Clothes	24.0	insufficient money
4	Color TV	20.0	insufficient money
5	Farming Tools	18.7	insufficient money
6	Foods	18.7	insufficient things and money
7	Rest and Amusement	14.7	insufficient money and times
8	Furniture	13.3	insufficient money
9	New House(Including Construction Materials	10.7	insufficient money
10	Animals(Cow, Horse)	9.3	insufficient money
11	Family Apparatus	8.0	insufficient money
12	Drinking Water	5.3	insufficient things and money
13	VIDEO Player	5.3	insufficient money
14	Land	2.7	insufficient money
15	Medicines	2.7	insufficient things and money

Source: Hearing survey for 100 farmers, JICA, 1994

T3.3.11-A5 Intention for Farming and Living by Farming Type

Items	Type of Farming			Total
	Individual	Association (AA,AAS)	Company (SCM,SCCP)	
	n = 78	n = 9	n = 4	n = 91
1. Intention for Farming	%	%	%	%
1) Farming is Wonderful Occupation	53.8	77.8	100.0	58.2
2) Keeping up Farming	80.8	100.0	100.0	83.5
3) Keeping up Farming Positively	75.6	100.0	100.0	79.1
4) Having Successors of Farming.	57.7	66.7	75.0	59.3
5) Intending to Work in	%	%	%	%
(1) Association	30.8	77.8	0.0	34.1
(2) Private Farm	67.9	22.2	25.0	61.5
(3) Others(e.g. SCM, SCCP, SCP,etc.)	1.3	0.0	75.0	4.4
2. Intention for Increase of Income	%	%	%	%
1) Expansion of Farm Land	20.0	22.2	25.0	23.0
2) Yield Increase of Present Cultivating Crops by Irrigation	75.0	100.0	100.0	88.0
3) Introduction of New Crops	16.0	11.1	0.0	17.0
4) Improvement of Storehouse and Marketing	45.0	22.2	50.0	49.0
3. Intention for Living				
1) How do you think your present level of living ? (1:highest ~ 9 grades)	5.4	5.0	4.3	5
2) Ideal Income (lei)	3,303,483	5,515,500*	6,000,000*	3,655,917
Living Expenditure in 1993	1,619,997	1,839,778	2,925,000*	1,703,695
3) Ratio of Ideal Income for Present Living Expenditure	3.0	2.9	1.9	3

Source: Hearing survey for 100 farmers. JICA, 1994

Note : * ; Difference between each mean value* and that of "Individual" is significant statistically at the relative precision of 0.05.

Table 3.3.11-A6 Intention for Farming and Living by Farmer's Type

Items	Farmer's Type	Farmer's Types				
	Full-time Farmer or not →	not full	not full	full	full	
	Less 1 ha of Farm Size or not →	over 1 ha	less 1 ha	over 1 ha	over 1 ha	Total
	Old-Person Household or not →	not old	not old	not old	old	
		n=37	n=12	n=25	n=17	n=91
1. Intention for Farming		%	%	%	%	%
1) Farming is Wonderful Occupation		51.4	58.3	68.0	58.8	58.2
2) Keeping up Farming		75.7	75.0	96.0*	88.2	83.5
3) Keeping up Farming Positively		75.7	66.7	88.0	82.4	79.1
4) Having Successors of Farming.		59.5	58.3	60.0	58.8	59.3
5) Intending to Work in		%	%	%	%	%
(1) Association		43.2	50.0	12.0	35.3	34.1
(2) Private Farm		48.6	41.7	88.0	64.7	61.5
(3) Others(e.g. SCM, SCCP, SCP, etc..)		8.1	8.3	0.0	0.0	4.4
2. Intention for Increase of Income		%	%	%	%	%
1) Expansion of Farm Land		27.0	33.3	24.0	17.6	23.0
2) Yield Increase of Present Cultivating Crops by Irrigation		100.0	91.7	96.0	94.1	96.7
3) Introduction of New Crops		24.3	16.7	8.0	23.5	17.0
4) Improvement of Storehouse and Marketing		51.4	50.0	64.0	47.1	49.0
3. Intention for Living						
1) How do you think your present level of living ? (1:highest ~ 9 grades)		5	6	5	5	5
2) Ideal Income (lei)		4,992,621	4,985,556	2,163,158 *	2,164,667 *	3,655,917
Living Expenditure in 1993 (lei)		2,277,530	1,821,083	1,073,360 *	1,359,653 *	1,703,695
3) Ratio of Ideal Income for Present Living Expenditure		2.6	3.8	3.0	3.0	2.9

Source: Hearing survey for 100 farmers, JICA, 1994

Note : 1) * ; Difference between each mean value* and that of both of "not full" groups is significant statistically at the relative precision of 0.05 or 0.01.

2) "Full, over 1 ha, not old" group in the farmer's type is included pensioners

Table 3.3.11-A7 Farmers' Expectation to the Government

NO.	Items of Expectation	Percentage of Replied Farmers (%)
1	Construction of Irrigation Facilities	82.9
2	Improvement of Agricultural Credit with Low Interest	73.2
3	Assistance for Getting Farm Machinery (Tractor, etc..)	42.7
4	Repair and Maintenance of Rural Infrastructures	41.5
5	Promoting Ownership of Farm Land	32.9
6	Assistance for Improvement of the Living Standard	29.3
7	Assistance for Organizing Associations	22.0
8	Supply of Farm Materials	6.1
9	Measures for Keeping Successors	4.9
10	Assistance for Medical Cares	4.9
11	Guarantee of Farm Products	3.7

Source: Hearing survey for 100 farmers, JICA, 1994

Table 3.3.11-A8 Illness Attacked Farmers in the Study Area (1993)

Seriou and Protracted Sickness		
Name of Sickness		Number of Families Get Sick in 1993
Rheumatism	リューマチ	13
Cardiopathy	心臓病	6
Sciatica	座骨神経痛	4
Diabetes	糖尿病	3
Chronic hepatitis	慢性肝炎	3
Lumbago	腰痛	2
Hipertension	高血圧	2
Hipotension	低血圧	2
Glaucoma	緑内症	1
Ischemica	局所貧血	1
Colic(colitis)	仙痛（大腸炎）	1
Hernia of an intervertbral disk	椎間板ヘルニア	1
Pulmonary tuberculosis	肺結核	1
Arthritis	関節炎	1
Asthma	喘息	1
Ulcer	潰瘍	1
Abscess	膿瘍	1

Death of Sickness		
Name of Sickness		Number of Families Get Sick in 1993
Leucotomy(operation)	ロボトミー	1
Anemic	貧血	1
Tumour(cranial)	脳腫瘍	1
Arteriosclerosis	動脈硬化症	1
Hipertension	高血圧	1

Note :	
Number of families replied (samples)	90
Number of families get sick during a year	40 (44 %)
Number of old-person families	16
Number of old-person families get sick	8 (50 %)

Source: Hearing survey for 100 farmers, JICA. 1994

Table 3.3.11-A9 Farmers' View on Medical Problems in the Study Area

	Items of Farmers' View on Medical Problems	Percentage of Replied Farmers(%)
1	High Expenditure for Medical Care	75.0
2	Poor Equipment of Hospitals	35.0
3	Far from the House to Clinics and Hospitals	15.0
4	Lack of Public Health System	13.3
5	No Public Medical Help of Government	8.3
6	Short of Hospitals for Serious Illness	6.7
7	Short of Nurses	6.7
8	Short of Clinics	5.0
9	Short of Doctors	5.0
10	Short of Medicine	1.7

Source: Hearing survey for 100 farmers, JICA, 1994

Note : Number of replied farmers is 83.

Table 3.4.2-A1 Characteristics of Inundation in the Study Area

Name of Rivers	Inundated Area (ha)	Frequency of Inundation	Present Land Use	Results of Initial Inventory
Domosita	160	once per two years	Pasture & Maize	- River water is observed in upstream; near Anghelesti but downstream is usually dry - Water way is used for the regional road - River protection works is rarely - Recent inundated years are 1986 and 1992
Carecna	Left bank 50 Right Bank 120 Total 170	once per two years	Pasture & Maize	- River course in the Study Area is dry except flooding time - Water way is used for the regional road - River works such as dyke, revetment etc., are rarely excluding protection works for bridge's abutments - Recent inundated year is none
Zabraut	Right Bank 150	once per two years	Pasture & Maize	- River course in the Study Area is dry except flooding time - Water way is used for the regional road - River works is rarely excluding downstream from National Road - Recent inundated year is 1993
Susita	Left bank 290 Right Bank 160 Total 450	once per two years	Pasture & Maize	- River course in the Study Area is dry except flooding time - Water way is used for the regional road - River works are rarely excluding protection works for bridge's abutments - Recent inundated years are 1986, 1991, 1992 and 1993
Putna	Left bank 360 Right Bank 120 Total 480	once per one or two years	Vineyard, Pasture & Upland crops	- River water is always observed - Temporary dyke were constructed along left bank of downstream - Existing irrigation systems were executed on both banks - Recent inundated years are 1970, 1977 and 1986
Total	1,410			

Source: 1) Inundated Area and Frequency are from ICPA's Unit Soil Map 1986
2) Others are from JICA Study Team

Table 3.5.1-A1 Characteristics of Soil Erosion in the SCSA

Zone	Block	Present Land Use	Present Conditions
A	A-1	Vineyard	- Many gullies are developing along the Trotus river - Biggest gully is in the western part of Copaceni and regional road is falling in danger. There are existing protection works. But, they are overage and need rehabilitation works.
	A-2	Vineyard and Pasture	- Gullies are developing along the Domosita river - Protection works are executed on the left bank of the Domosita river, but there are no protection works on the right bank.
	A-3	Vineyard and Pasture	- Many gullies are developing along the Domosita river. - One of them is used for regional road (Ruginesti- Viisoara). - Existing protection works are executed in this area.
	A-4	Vineyard and Pasture	- Gullies are developing along the Caselor river, but they are not so deep. The revetment works are executed in the Caselor river which is used for drainage canal from the gullies.
	A-5	Vineyard	- Slop of this area is gentle and erosion is shallow and slight. - Contour strips and inter-cropping are developed in this area. - Vilcica river flows in this area and works as drainage canal.
B	B-1	Vineyard and Pasture	- Many gullies are developing along the Carecna river and its tributary (Repedea river). Reforestation are prevailing along the Carecna river, but few civil works exist in this area.
	B-2	Vineyard and Pasture	- Many gullies are developing along the Zabraut, but they are not so deep. Gentle slops are used for pasture and reforestation are prevailing in steep slops
	B-3	Vineyard and Upland crops	- Slop of this area is gentle (less than 5 %) and erosion is shallow and slight.
C	C-1	Vineyard and Pasture	- Many gullies are developing along the Zabrausorul river and deep erosions are developing in pasture. Existing protection works are few.
	C-2	Vineyard and Pasture	- Gullies are developing in steep slop along the Zabraut river. - One of them is very deep and denticulate, but protection works are not yet executed.
	C-3	Vineyard	- Many gullies and ravines are developing in steep slop along the Susita river. These ravines are used for urban drainage canal from Panciu and Straoane. Comparatively, many protection works are in this area, but rehabilitation of them and new protection works are required.
	C-4	Vineyard	- Slop of this area is gentle (less than 5 %) and erosion is shallow and slight. - Networks of catch drains are the highest density in the Study Area.
D	D-1	Vineyard and Pasture	- Many gullies are developing in steep slop along the Susita river. Existing protection works and reforestation are executed in this area. Gully in the western edge is very deep and wide, and new protection works is urgently required.
	D-2	Vineyard and Pasture	- Many gullies and ravines are developing in steep slop along the Putna river. Comparatively new check dam exist in the ravine near the Tifesti and this ravine is used for drainage canal from existing catch drains.
	D-3	Vineyard and Upland crops	- Slop of this area is gentle (less than 5 %) and erosion is shallow and slight except for the Putna river side. - Catch drains and drainage canals are constructed in this area.
E	E-1	Pasture and Vineyard	- Many gullies and ravines are developing in steep slop along the Putna river. Many protection works are constructed in the area. But, rehabilitation works are required because many facilities are overage.
	E-2	Vineyard & Pasture	- Many gullies and ravines are developing in steep slop of the foothills of the Sub-Carpathian. - Grass strips are observed in vineyard and protection works are also executed in this area.

Note : Zones and Blocks are shown in Fig 3.5.1-A1 to -A5.

Table 3.5.4 - A1 Soil Loss Analysis in Maize Farm without Irrigation.

Model Code	Slope Declination (%)	Slope Length (m)	Irrigation	Soil Conservation	Rainfall Erosivity Index (K)	Soil Erodibility Factor (S)	Crop Management Factor (C)	Conservation Practice Factor (Cs)	Length Factor (L^0.3)	Slope Factor (I^1.5)	Soil Loss (ton/ha/year) (E)
M-3-400	3	400	without	without	0.158	1.0	0.8	1.0	6.0	5.2	4.0
M-3-300	3	300	without	without	0.158	1.0	0.8	1.0	5.5	5.2	3.6
M-3-200	3	200	without	without	0.158	1.0	0.8	1.0	4.9	5.2	3.2
M-3-100	3	100	without	without	0.158	1.0	0.8	1.0	4.0	5.2	2.6
M-3- 50	3	50	without	without	0.158	1.0	0.8	1.0	3.2	5.2	2.1
M-4-400	4	400	without	without	0.158	1.0	0.8	1.0	6.0	8.0	6.1
M-4-300	4	300	without	without	0.158	1.0	0.8	1.0	5.5	8.0	5.6
M-4-200	4	200	without	without	0.158	1.0	0.8	1.0	4.9	8.0	5.0
M-4-100	4	100	without	without	0.158	1.0	0.8	1.0	4.0	8.0	4.0
M-4- 50	4	50	without	without	0.158	1.0	0.8	1.0	3.2	8.0	3.3
M-5-400	5	400	without	without	0.158	1.0	0.8	1.0	6.0	11.2	8.5
M-5-300	5	300	without	without	0.158	1.0	0.8	1.0	5.5	11.2	7.8
M-5-200	5	200	without	without	0.158	1.0	0.8	1.0	4.9	11.2	6.9
M-5-100	5	100	without	without	0.158	1.0	0.8	1.0	4.0	11.2	5.6
M-5- 50	5	50	without	without	0.158	1.0	0.8	1.0	3.2	11.2	4.6
M-6-400	6	400	without	without	0.158	1.0	0.8	1.0	6.0	14.7	11.2
M-6-300	6	300	without	without	0.158	1.0	0.8	1.0	5.5	14.7	10.3
M-6-200	6	200	without	without	0.158	1.0	0.8	1.0	4.9	14.7	9.1
M-6-100	6	100	without	without	0.158	1.0	0.8	1.0	4.0	14.7	7.4
M-6- 50	6	50	without	without	0.158	1.0	0.8	1.0	3.2	14.7	6.0
M-8-400	8	400	without	without	0.158	1.0	0.8	1.0	6.0	22.6	17.3
M-8-300	8	300	without	without	0.158	1.0	0.8	1.0	5.5	22.6	15.8
M-8-200	8	200	without	without	0.158	1.0	0.8	1.0	4.9	22.6	14.0
M-8-100	8	100	without	without	0.158	1.0	0.8	1.0	4.0	22.6	11.4
M-8- 50	8	50	without	without	0.158	1.0	0.8	1.0	3.2	22.6	9.2
M-10-400	10	400	without	without	0.158	1.0	0.8	1.0	6.0	31.6	24.1
M-10-300	10	300	without	without	0.158	1.0	0.8	1.0	5.5	31.6	22.1
M-10-200	10	200	without	without	0.158	1.0	0.8	1.0	4.9	31.6	19.6
M-10-100	10	100	without	without	0.158	1.0	0.8	1.0	4.0	31.6	15.9
M-10- 50	10	50	without	without	0.158	1.0	0.8	1.0	3.2	31.6	12.9

Table 3.5.4 - A2 Soil Loss Analysis in Maize Farm with Irrigation.

Model Code	Slope Declination (%)	Slope Length (m)	Irrigation	Soil Conservation	Rainfall Erosivity Index (K)	Soil Erodibility Factor (S)	Crop Management Factor (C)	Conservation Practice Factor (Cs)	Length Factor (L^0.3)	Slope Factor (I^1.5)	Soil Loss (ton/ha/year) (E)
M-3-400	3	400	with	without	0.190	1.0	0.8	1.0	6.0	5.2	4.8
M-3-300	3	300	with	without	0.190	1.0	0.8	1.0	5.5	5.2	4.4
M-3-200	3	200	with	without	0.190	1.0	0.8	1.0	4.9	5.2	3.9
M-3-100	3	100	with	without	0.190	1.0	0.8	1.0	4.0	5.2	3.1
M-3- 50	3	50	with	without	0.190	1.0	0.8	1.0	3.2	5.2	2.6
M-4-400	4	400	with	without	0.190	1.0	0.8	1.0	6.0	8.0	7.3
M-4-300	4	300	with	without	0.190	1.0	0.8	1.0	5.5	8.0	6.7
M-4-200	4	200	with	without	0.190	1.0	0.8	1.0	4.9	8.0	6.0
M-4-100	4	100	with	without	0.190	1.0	0.8	1.0	4.0	8.0	4.8
M-4- 50	4	50	with	without	0.190	1.0	0.8	1.0	3.2	8.0	3.9
M-5-400	5	400	with	without	0.190	1.0	0.8	1.0	6.0	11.2	10.3
M-5-300	5	300	with	without	0.190	1.0	0.8	1.0	5.5	11.2	9.4
M-5-200	5	200	with	without	0.190	1.0	0.8	1.0	4.9	11.2	8.3
M-5-100	5	100	with	without	0.190	1.0	0.8	1.0	4.0	11.2	6.8
M-5- 50	5	50	with	without	0.190	1.0	0.8	1.0	3.2	11.2	5.5
M-6-400	6	400	with	without	0.190	1.0	0.8	1.0	6.0	14.7	13.5
M-6-300	6	300	with	without	0.190	1.0	0.8	1.0	5.5	14.7	12.4
M-6-200	6	200	with	without	0.190	1.0	0.8	1.0	4.9	14.7	10.9
M-6-100	6	100	with	without	0.190	1.0	0.8	1.0	4.0	14.7	8.9
M-6- 50	6	50	with	without	0.190	1.0	0.8	1.0	3.2	14.7	7.2
M-8-400	8	400	with	without	0.190	1.0	0.8	1.0	6.0	22.6	20.8
M-8-300	8	300	with	without	0.190	1.0	0.8	1.0	5.5	22.6	19.0
M-8-200	8	200	with	without	0.190	1.0	0.8	1.0	4.9	22.6	16.9
M-8-100	8	100	with	without	0.190	1.0	0.8	1.0	4.0	22.6	13.7
M-8- 50	8	50	with	without	0.190	1.0	0.8	1.0	3.2	22.6	11.1
M-10-400	10	400	with	without	0.190	1.0	0.8	1.0	6.0	31.6	29.0
M-10-300	10	300	with	without	0.190	1.0	0.8	1.0	5.5	31.6	26.6
M-10-200	10	200	with	without	0.190	1.0	0.8	1.0	4.9	31.6	23.6
M-10-100	10	100	with	without	0.190	1.0	0.8	1.0	4.0	31.6	19.1
M-10- 50	10	50	with	without	0.190	1.0	0.8	1.0	3.2	31.6	15.5

Table 3.5.4 - A3 Soil Loss Analysis in Maize Farm with Irrigation and Contouring.

Model Code	Slope Declination (%)	Slope Length (m)	Irrigation	Soil Conservation	Rainfall Erosivity Index (K)	Soil Erodibility Factor (S)	Crop Management Factor (C)	Conservation Practice Factor (Cs)	Length Factor (L^0.3)	Slope Factor (I^1.5)	Soil Loss (ton/ha/year) (E)
M-3-400	3	400	with	with	0.190	1.0	0.8	0.5	6.0	5.2	2.4
M-3-300	3	300	with	with	0.190	1.0	0.8	0.5	5.5	5.2	2.2
M-3-200	3	200	with	with	0.190	1.0	0.8	0.5	4.9	5.2	1.9
M-3-100	3	100	with	with	0.190	1.0	0.8	0.5	4.0	5.2	1.6
M-3- 50	3	50	with	with	0.190	1.0	0.8	0.5	3.2	5.2	1.3
M-4-400	4	400	with	with	0.190	1.0	0.8	0.5	6.0	8.0	3.7
M-4-300	4	300	with	with	0.190	1.0	0.8	0.5	5.5	8.0	3.4
M-4-200	4	200	with	with	0.190	1.0	0.8	0.5	4.9	8.0	3.0
M-4-100	4	100	with	with	0.190	1.0	0.8	0.5	4.0	8.0	2.4
M-4- 50	4	50	with	with	0.190	1.0	0.8	0.5	3.2	8.0	2.0
M-5-400	5	400	with	with	0.190	1.0	0.8	0.5	6.0	11.2	5.1
M-5-300	5	300	with	with	0.190	1.0	0.8	0.5	5.5	11.2	4.7
M-5-200	5	200	with	with	0.190	1.0	0.8	0.5	4.9	11.2	4.2
M-5-100	5	100	with	with	0.190	1.0	0.8	0.5	4.0	11.2	3.4
M-5- 50	5	50	with	with	0.190	1.0	0.8	0.5	3.2	11.2	2.7
M-6-400	6	400	with	with	0.190	1.0	0.8	0.5	6.0	14.7	6.7
M-6-300	6	300	with	with	0.190	1.0	0.8	0.5	5.5	14.7	6.2
M-6-200	6	200	with	with	0.190	1.0	0.8	0.5	4.9	14.7	5.5
M-6-100	6	100	with	with	0.190	1.0	0.8	0.5	4.0	14.7	4.4
M-6- 50	6	50	with	with	0.190	1.0	0.8	0.5	3.2	14.7	3.6
M-8-400	8	400	with	with	0.190	1.0	0.8	0.6	6.0	22.6	12.5
M-8-300	8	300	with	with	0.190	1.0	0.8	0.6	5.5	22.6	11.4
M-8-200	8	200	with	with	0.190	1.0	0.8	0.6	4.9	22.6	10.1
M-8-100	8	100	with	with	0.190	1.0	0.8	0.6	4.0	22.6	8.2
M-8- 50	8	50	with	with	0.190	1.0	0.8	0.6	3.2	22.6	6.7
M-10-400	10	400	with	with	0.190	1.0	0.8	0.6	6.0	31.6	17.4
M-10-300	10	300	with	with	0.190	1.0	0.8	0.6	5.5	31.6	16.0
M-10-200	10	200	with	with	0.190	1.0	0.8	0.6	4.9	31.6	14.1
M-10-100	10	100	with	with	0.190	1.0	0.8	0.6	4.0	31.6	11.5
M-10- 50	10	50	with	with	0.190	1.0	0.8	0.6	3.2	31.6	9.3

Table 3.5.4-A4 Soil Loss Analysis in Vineyard without Irrigation

Model Code	Slope Declination (%)	Slope Length (m)	Irrigation	Soil Conservation	Rainfall Erosivity Index (K)	Soil Erodibility Factor (S)	Crop Management Factor (C)	Conservation Practice Factor (Cs)	Length Factor (L^0.3)	Slope Factor (I^1.5)	Soil Loss (ton/ha/year) (E)
V-3-400	3	400	without	without	0.158	1.0	0.7	1.0	6.0	5.2	3.5
V-3-300	3	300	without	without	0.158	1.0	0.7	1.0	5.5	5.2	3.2
V-3-200	3	200	without	without	0.158	1.0	0.7	1.0	4.9	5.2	2.8
V-3-100	3	100	without	without	0.158	1.0	0.7	1.0	4.0	5.2	2.3
V-3- 50	3	50	without	without	0.158	1.0	0.7	1.0	3.2	5.2	1.9
V-4-400	4	400	without	without	0.158	1.0	0.7	1.0	6.0	8.0	5.3
V-4-300	4	300	without	without	0.158	1.0	0.7	1.0	5.5	8.0	4.9
V-4-200	4	200	without	without	0.158	1.0	0.7	1.0	4.9	8.0	4.3
V-4-100	4	100	without	without	0.158	1.0	0.7	1.0	4.0	8.0	3.5
V-4- 50	4	50	without	without	0.158	1.0	0.7	1.0	3.2	8.0	2.9
V-5-400	5	400	without	without	0.158	1.0	0.7	1.0	6.0	11.2	7.5
V-5-300	5	300	without	without	0.158	1.0	0.7	1.0	5.5	11.2	6.8
V-5-200	5	200	without	without	0.158	1.0	0.7	1.0	4.9	11.2	6.1
V-5-100	5	100	without	without	0.158	1.0	0.7	1.0	4.0	11.2	4.9
V-5- 50	5	50	without	without	0.158	1.0	0.7	1.0	3.2	11.2	4.0
V-6-400	6	400	without	without	0.158	1.0	0.7	1.0	6.0	14.7	9.8
V-6-300	6	300	without	without	0.158	1.0	0.7	1.0	5.5	14.7	9.0
V-6-200	6	200	without	without	0.158	1.0	0.7	1.0	4.9	14.7	8.0
V-6-100	6	100	without	without	0.158	1.0	0.7	1.0	4.0	14.7	6.5
V-6- 50	6	50	without	without	0.158	1.0	0.7	1.0	3.2	14.7	5.3
V-8-400	8	400	without	without	0.158	1.0	0.7	1.0	6.0	22.6	15.1
V-8-300	8	300	without	without	0.158	1.0	0.7	1.0	5.5	22.6	13.9
V-8-200	8	200	without	without	0.158	1.0	0.7	1.0	4.9	22.6	12.3
V-8-100	8	100	without	without	0.158	1.0	0.7	1.0	4.0	22.6	10.0
V-8- 50	8	50	without	without	0.158	1.0	0.7	1.0	3.2	22.6	8.1
V-10-400	10	400	without	without	0.158	1.0	0.7	1.0	6.0	31.6	21.1
V-10-300	10	300	without	without	0.158	1.0	0.7	1.0	5.5	31.6	19.4
V-10-200	10	200	without	without	0.158	1.0	0.7	1.0	4.9	31.6	17.1
V-10-100	10	100	without	without	0.158	1.0	0.7	1.0	4.0	31.6	13.9
V-10- 50	10	50	without	without	0.158	1.0	0.7	1.0	3.2	31.6	11.3

Table 3.5.4-A5 Soil Loss Analysis in Vineyard with Irrigation

Model Code	Slope Declination (%)	Slope Length (m)	Irrigation	Soil Conservation	Rainfall Erosivity Index (K)	Soil Erodibility Factor (S)	Crop Management Factor (C)	Conservation Practice Factor (Cs)	Length Factor (L^0.3)	Slope Factor (I^1.5)	Soil Loss (ton/ha/year) (E)
V-3-400	3	400	with	without	0.190	1.0	0.7	1.0	6.0	5.2	4.2
V-3-300	3	300	with	without	0.190	1.0	0.7	1.0	5.5	5.2	3.8
V-3-200	3	200	with	without	0.190	1.0	0.7	1.0	4.9	5.2	3.4
V-3-100	3	100	with	without	0.190	1.0	0.7	1.0	4.0	5.2	2.8
V-3- 50	3	50	with	without	0.190	1.0	0.7	1.0	3.2	5.2	2.2
V-4-400	4	400	with	without	0.190	1.0	0.7	1.0	6.0	8.0	6.4
V-4-300	4	300	with	without	0.190	1.0	0.7	1.0	5.5	8.0	5.9
V-4-200	4	200	with	without	0.190	1.0	0.7	1.0	4.9	8.0	5.2
V-4-100	4	100	with	without	0.190	1.0	0.7	1.0	4.0	8.0	4.2
V-4- 50	4	50	with	without	0.190	1.0	0.7	1.0	3.2	8.0	3.4
V-5-400	5	400	with	without	0.190	1.0	0.7	1.0	6.0	11.2	9.0
V-5-300	5	300	with	without	0.190	1.0	0.7	1.0	5.5	11.2	8.2
V-5-200	5	200	with	without	0.190	1.0	0.7	1.0	4.9	11.2	7.3
V-5-100	5	100	with	without	0.190	1.0	0.7	1.0	4.0	11.2	5.9
V-5- 50	5	50	with	without	0.190	1.0	0.7	1.0	3.2	11.2	4.8
V-6-400	6	400	with	without	0.190	1.0	0.7	1.0	6.0	14.7	11.8
V-6-300	6	300	with	without	0.190	1.0	0.7	1.0	5.5	14.7	10.8
V-6-200	6	200	with	without	0.190	1.0	0.7	1.0	4.9	14.7	9.6
V-6-100	6	100	with	without	0.190	1.0	0.7	1.0	4.0	14.7	7.8
V-6- 50	6	50	with	without	0.190	1.0	0.7	1.0	3.2	14.7	6.3
V-8-400	8	400	with	without	0.190	1.0	0.7	1.0	6.0	22.6	18.2
V-8-300	8	300	with	without	0.190	1.0	0.7	1.0	5.5	22.6	16.7
V-8-200	8	200	with	without	0.190	1.0	0.7	1.0	4.9	22.6	14.8
V-8-100	8	100	with	without	0.190	1.0	0.7	1.0	4.0	22.6	12.0
V-8- 50	8	50	with	without	0.190	1.0	0.7	1.0	3.2	22.6	9.7
V-10-400	10	400	with	without	0.190	1.0	0.7	1.0	6.0	31.6	25.4
V-10-300	10	300	with	without	0.190	1.0	0.7	1.0	5.5	31.6	23.3
V-10-200	10	200	with	without	0.190	1.0	0.7	1.0	4.9	31.6	20.6
V-10-100	10	100	with	without	0.190	1.0	0.7	1.0	4.0	31.6	16.7
V-10- 50	10	50	with	without	0.190	1.0	0.7	1.0	3.2	31.6	13.6

Table 3.5.4-A6 Soil Loss Analysis in Vineyard with Irrigation and Contouring

Model Code	Slope Declination (%)	Slope Length (m)	Irrigation	Soil Conservation	Rainfall Erosivity Index (K)	Soil Erodibility Factor (S)	Crop Management Factor (C)	Conservation Practice Factor (Cs)	Length Factor (L^0.3)	Slope Factor (I^1.5)	Soil Loss (ton/ha/year) (E)
V-3-400	3	400	with	with	0.190	1.0	0.7	0.5	6.0	5.2	2.1
V-3-300	3	300	with	with	0.190	1.0	0.7	0.5	5.5	5.2	1.9
V-3-200	3	200	with	with	0.190	1.0	0.7	0.5	4.9	5.2	1.7
V-3-100	3	100	with	with	0.190	1.0	0.7	0.5	4.0	5.2	1.4
V-3- 50	3	50	with	with	0.190	1.0	0.7	0.5	3.2	5.2	1.1
V-4-400	4	400	with	with	0.190	1.0	0.7	0.5	6.0	8.0	3.2
V-4-300	4	300	with	with	0.190	1.0	0.7	0.5	5.5	8.0	2.9
V-4-200	4	200	with	with	0.190	1.0	0.7	0.5	4.9	8.0	2.6
V-4-100	4	100	with	with	0.190	1.0	0.7	0.5	4.0	8.0	2.1
V-4- 50	4	50	with	with	0.190	1.0	0.7	0.5	3.2	8.0	1.7
V-5-400	5	400	with	with	0.190	1.0	0.7	0.5	6.0	11.2	4.5
V-5-300	5	300	with	with	0.190	1.0	0.7	0.5	5.5	11.2	4.1
V-5-200	5	200	with	with	0.190	1.0	0.7	0.5	4.9	11.2	3.6
V-5-100	5	100	with	with	0.190	1.0	0.7	0.5	4.0	11.2	3.0
V-5- 50	5	50	with	with	0.190	1.0	0.7	0.5	3.2	11.2	2.4
V-6-400	6	400	with	with	0.190	1.0	0.7	0.5	6.0	14.7	5.9
V-6-300	6	300	with	with	0.190	1.0	0.7	0.5	5.5	14.7	5.4
V-6-200	6	200	with	with	0.190	1.0	0.7	0.5	4.9	14.7	4.8
V-6-100	6	100	with	with	0.190	1.0	0.7	0.5	4.0	14.7	3.9
V-6- 50	6	50	with	with	0.190	1.0	0.7	0.5	3.2	14.7	3.2
V-8-400	8	400	with	with	0.190	1.0	0.7	0.6	6.0	22.6	10.9
V-8-300	8	300	with	with	0.190	1.0	0.7	0.6	5.5	22.6	10.0
V-8-200	8	200	with	with	0.190	1.0	0.7	0.6	4.9	22.6	8.9
V-8-100	8	100	with	with	0.190	1.0	0.7	0.6	4.0	22.6	7.2
V-8- 50	8	50	with	with	0.190	1.0	0.7	0.6	3.2	22.6	5.8
V-10-400	10	400	with	with	0.190	1.0	0.7	0.6	6.0	31.6	15.2
V-10-300	10	300	with	with	0.190	1.0	0.7	0.6	5.5	31.6	14.0
V-10-200	10	200	with	with	0.190	1.0	0.7	0.6	4.9	31.6	12.4
V-10-100	10	100	with	with	0.190	1.0	0.7	0.6	4.0	31.6	10.0
V-10- 50	10	50	with	with	0.190	1.0	0.7	0.6	3.2	31.6	8.2

Table 3.5.4-A7 Coefficient of Rainfall (K)

	Region	Value of (K)
1.	Dobrogea	0.094
2.	Podisul Central Moldovenesc	0.100
3.	Cimpia Munteniei	0.127
4.	Sudul Moldovei si dealurile subcarpatice	0.144
5.	Transilvania	0.127
6.	Bazinul mijlociu al Muresului	0.094
7.	Cimpia si dealurile din vest	0.067
8.	Carpatii Orientali	0.167
9.	Carpatii Meridionali	0.207
10.	Muntii Apuseni	0.132

Source: Ministerul Agriculturii, Industriei Alimentare si Apelor

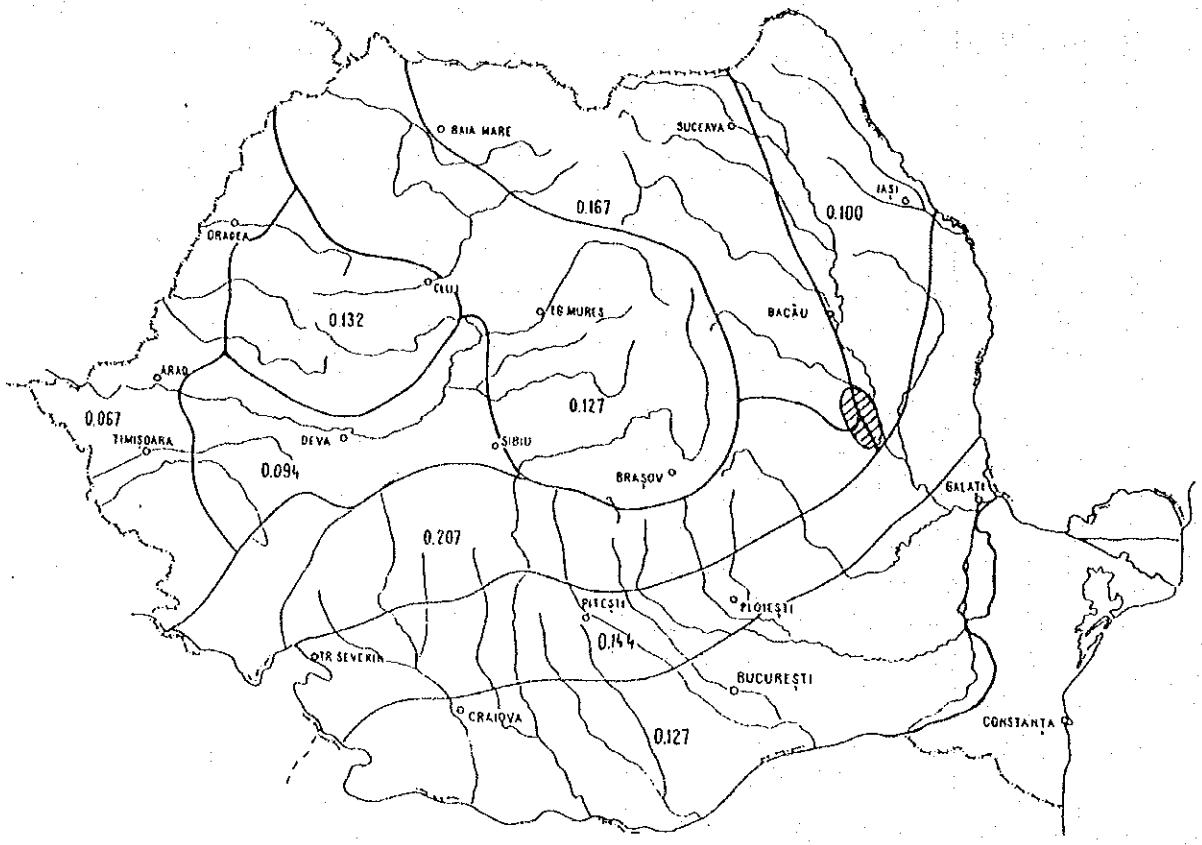

Table 3.5.4-A8 Coefficient of Soil Erodibility (S)

No.	Soil Characteristics	Value of (S)
1	Very strong and excessive erosion with small resistance to erosion, light cohesivity	1.2
2	Strong and very strong erosion with light cohesivity	1.0
3	Strong and very strong erosion with medium cohesivity or non appreciable and moderate erosion with light cohesivity	0.8
4	Strong and very strong erosion with strong cohesivity	0.7
5	Non appreciable and moderate erosion with medium cohesivity	0.7
6	Non appreciable and moderate erosion with strong cohesivity, good structure and infiltration	0.6

Source: Ministerul Agriculturii, Industriei, Alimentare si Apelor

Table 3.5.4-A9 Coefficient of Crop Management (C)

No.	Crops	Value of (C)
1	Maize - mono crop (un-rational rotation)	1.000
2	Maize (rational rotation)	0.800
3	Vineyard	0.700
4	Potato and Sugar Beet	0.600
5	Pea and Bean	0.300
6	Spring Cereals	0.200
7	Autumn Cereals	0.140
8	Perennial Grasses - first year	0.060
9	Perennial Grasses - after the 2nd year	0.014

Source: Ministerul Agriculturii, Industriei Alimentare si Apelor

Table 3.5.4-A10 Coefficient of Erosion Control Practice (Cs)

No.	Measures and Works	Slope Range (%)	Value of (Cs)
1	Contour farming	3-7	0.50
		7-12	0.60
		12-18	0.80
		18-24	0.90
2	Stripped crop farming	3-7	0.25
		7-12	0.30
		12-18	0.40
		18-24	0.45
3	Terrace	3-7	0.15
		7-12	0.18
		12-18	0.24
		18-24	0.27
4	Broad base Terrace	3-7	0.10
		7-12	0.12
		12-18	0.16
		18-24	0.18

Source: Ministerul Agriculturii, Industriei Alimentare si Apelor

Table 3.5.5-A1 Assessment of the Erosion Control Area

Area Code	River Basin	Area of Basin (ha)	Area of Vineyard (ha)	% of Vineyard	Slope (%)	Sheet Erosion Class	Sediment Capacity by Gully Erosion (m3/ha/yr)	Soil Losses (ton/ha/yr)	Location vs. Irrigation Area	Class of Priority
E/I/1	Milcov	264	57	21.6	7-25	-	600-900	-	near irrigation border	I
E/I/2	- " -	16	9	56.3	6-22	-	500-800	-	- " -	I
E/I/3	- " -	164	74	45.1	5-24	-	400-600	-	- " -	I
E/I/4	Putna	26	5	19.2	7-10	-	500-700	-	outside irrigation system	III
E/I/5	- " -	16	0	0.0	7-12	-	400-600	-	- " -	III
E/I/6	- " -	39	5	12.8	6-11	-	500-800	-	- " -	III
E/I/7	- " -	110	40	36.4	6-14	-	400-500	-	- " -	III
E/I/8	- " -	124	9	7.3	5-14	-	400-500	-	- " -	III
E/I/9	- " -	26	6	23.1	18-30	very strong excessive	-	24-30	- " -	III
D/I/10	- " -	180	6	3.3	20-32	- " -	-	26-32	- " -	III
D/I/11	Susita	191	6	3.1	16-26	- " -	-	16-28	- " -	III
C/I/12	- " -	844	127	15.0	12-25	- " -	500-700	18-25	- " -	III
C/I/13	Zabraut	29	7	24.1	8-12	very strong	300-400	16-20	- " -	III
C/I/14	- " -	29	20	69.0	18-22	- " -	-	18-25	- " -	III
C/I/15	- " -	244	37	15.2	18-28	very strong excessive	500-600	21-27	- " -	III
C/I/16	- " -	126	0	0.0	12-18	- " -	300-400	24-28	- " -	III
C/I/17	- " -	235	18	7.7	14-26	very strong	400-500	20-26	- " -	III
B/I/18	- " -	318	6	1.9	14-25	very strong excessive	300-400	18-25	- " -	III
B/I/19	Carecna	240	11	4.6	15-25	very strong	300-400	16-24	- " -	III
B/I/20	- " -	38	0	0.0	18-22	- " -	300-400	17-22	- " -	III
A/I/21	- " -	131	0	0.0	12-20	- " -	-	14-22	- " -	III
A/I/22	- " -	192	11	5.7	12-20	- " -	-	12-18	- " -	III
A/I/23	Trotus	94	4	4.3	18-26	- " -	-	17-26	- " -	III
A/I/24	- " -	260	9	3.5	13-22	- " -	400-500	18-24	- " -	III
A/I/25	- " -	153	77	50.3	16-22	- " -	-	22-28	- " -	III
A/I/26	- " -	294	106	36.1	16-28	- " -	-	23-30	- " -	III
A/I/27	- " -	40	9	22.5	25-30	very strong excessive	300-350	14-18	- " -	III
A/I/28	- " -	180	32	17.8	14-28	- " -	400-500	20-26	- " -	III
A/I/29	- " -	54	0	0.0	28-35	- " -	-	12-16	- " -	III
sub-total		4,657	691	14.8	-	-	-	-	-	-
E/II/1	Milcov	453	421	92.9	6-14	strong - very strong	-	12-18	outside irrigation system	III
E/II/2	- " -	214	161	75.2	12-16	- " -	-	13-19	- " -	III
E/II/3	- " -	185	185	100.0	10-16	- " -	-	13-19	- " -	III
E/II/4	Putna	142	109	76.8	8-12	- " -	-	10-16	- " -	III
E/II/5	- " -	104	81	77.9	8-12	- " -	-	10-16	- " -	III
E/II/6	- " -	1,234	785	63.6	6-12	- " -	-	14-18	- " -	III
D/II/7	Susita + Putna	138	138	100.0	6-12	strong	-	14-18	- " -	III
C/II/8	Zabraut	141	124	87.9	6-14	- " -	-	13-17	- " -	III
C/II/9	- " -	225	225	100.0	6-10	moderate-strong	-	8-14	- " -	III
C/II/10	Susita	176	155	88.1	5-10	moderate	-	6-12	- " -	III
C/II/11	Susita + Zabraut	248	171	69.0	4-18	moderate-strong	-	8-14	- " -	III
C/ II/12	Zabraut	28	28	100.0	8-14	- " -	-	7-12	- " -	III
C/II/13	- " -	308	134	43.5	5-12	moderate	-	6-12	- " -	III
C/II/14	- " -	54	0	0.0	8-12	- " -	-	7-10	- " -	III
B/II/15	Carecna	179	9	5.0	6-10	- " -	-	6-10	- " -	III
A/II/16	- " -	234	11	4.7	5-16	moderate-strong	-	6-10	- " -	III
A/II/17	Trotus	42	2	4.8	7-12	moderate	-	6- 8	- " -	III
A/II/18	- " -	64	55	85.9	8-14	moderate-strong	-	7-11	- " -	III
A/II/19	- " -	65	12	18.5	5- 8	moderate	-	6- 8	- " -	III
sub-total	-	4,234	2,806	66.3	-	-	-	-	-	-
E/III/1	Milcov + Putna	570	450	78.9	6-10	moderate	-	7-14	near irrigation border	II
E/III/2	Putna	428	362	84.6	5-10	- " -	-	7-14	- " -	II
D/III/3	Putna + Susita	730	636	87.1	3- 6	- " -	-	4- 8	- " -	II
C/III/4	Putna + Zabraut	399	357	89.5	4- 7	- " -	-	5- 8	- " -	II
B/III/5	Siret	756	586	77.5	3- 7	- " -	-	5- 9	- " -	II
A/III/6	- " -	173	162	93.6	4- 8	moderate	-	5- 9	- " -	II
A/III/7	- " -	709	572	80.7	4- 8	moderate	-	5- 9	- " -	II
sub-total	-	3,765	3,125	83.0	-	-	-	-	-	-
C/IV/1	Siret	649	582	89.7	4- 6	moderate	-	5- 8	inside irrigation area	I
B/IV/2	- " -	626	303	48.4	4- 7	- " -	-	5- 8	- " -	I
A/IV/2	- " -	431	44	10.2	4- 7	- " -	-	5- 8	- " -	I
sub-total	-	1,706	929	54.5	-	-	-	-	-	-
Total	-	14,362	7,551	52.6	-	-	-	-	-	-

Note : Area Codes are shown in Fig 3.5.5-A1

Table 3.6.1-A1 Natural Protected Areas in Vrancea District

No.	Protected Unit	Locality	Area (ha)
1	Zabal - Raoaza	Nereju	50.0
2	Andreiasu	Andreiasu	12.0
3	Virful Goru	Naruja	391.4
4	Lacul Negru	Nistoresti	20.0
5	Padurea Verdele	Naruja	250.0
6	Padurea Cenaru I	Andreiasu	233.4
7	Padurea Lepsa - Zboina	Tulnici	210.7
8	Padurea Schitu - Dalhauti	Cirligele	188.2
9	Padurea Cenaru II	Andreiasu	149.8
10	Padurea Izvoarele Narujei	Nistoresti	78.0
11	Padurea Tisita	Tulnici	307.0
12	Caldarile Zabalei - Piriul Negru	Neruja	300.0
13	Cheile Narujei	Naruja	200.0
14	Padurea Scruntar	Reghiu	125.0
15	Ripa Rosie - Dealul Morii	Tulnici	49.6
16	Strimtura	Tulnici	15.0
17	Algheanu	Vrincioaia	10.0
18	Cascada Putnei	Tulnici	10.0
19	Piriul Bozu	Valea Sarii	5.0
20	Cheile Tisitei Mari	Tulnici	0.0
	Total		2,605.1

Source: Starea Mediului in Romania
Note : Locations are shown in Fig 3.6.1-A1

Table 3.6.1-A2 List of Protected Areas in the "Flood Plain Siret Area"

No.	Location	Production Forest	Protected Unit	Area (ha)
1	Adjud	Zavoaile /	T. Siscani	36.2
2		Siretului	Burcioaia	71.4
3	Homocea		Berghel	365.3
4	Pufesti		Boscani	80.6
5			Zavoi Trotus	95.6
6	Boghesti	Homocea	Metehau	32.5
7			Valea Marului	19.3
8			Jugani	25.6
9			Boghesti	48.2
10			Boghesti	106.1
11	Marasesti	Doaga	Padureni	95.3
12			Tr. Marasesti	42.3
13			Marasesti	34.8
14			Calimanesti	28.7
15	Vanatori	Focsani	Padurea Neagra	313.7
16	Milcovu		Dumbravita	174.4
17	Garoafa		Garoafa	167.2
18	Vulturu	Biliesti	Vulturu	12.0
19	Nanesti		Calieni	14.8
	Total			1,764.0

Source: Environmental Branch Agency of Vrancea District

Table 3.6.3 - A1 Romanian Standards on River Water Quality Categories.

Quality Category	Scope of Use
I	• centralized potable water supply • central water supply to animal growing units • central water supply for food industry use / other activities requiring water of potable quality • water supply for culturing of vegetables which require water of Category I • hatching and rearing of slmonids / salmonid fisheies • natural bathing water (pools) • basins for water contact sports
II	• Hatching and rearing for maintenance of natural fish stocks / water supply for fishery purposes, with the exception of most salmonids • water supply for industrial technological processes / other activeities requiring water of Category II quality • for urban and recreational use
III	• irrigation supply to irrigation systems providing water for agriculture • water for hydro-electric power generation • water supply for cooling systems • water supply to washing stations / other activities requiring water of Category III quality

Notes : (1) For surface waters intended for supply, the quality category refers to the water from the source, before treatment.
(2) For surface waters supplied for other uses than those listed in the above table, the quality category shall be approved by the Water Mangement Authority.
(3) The quality of agricultural irrigation waters should correspond to STAS 9450-88.
(4) The quqlity of natural bathing waters should correspond to STAS 12585-87.

Table 3.6.3 - A2 Romanian Standards on Chemical Determinants of Water

Determinant	Admissible Value Quality Categry			Method of Analysis
	I	II	III	
Ammonium (ionised NH_4^+), mg/dm³, max.	1	3	10	STA 8683-70
Ammonia (non-ionised NH_4^+), mg/dm³, max.	0.1	0.3	0.5	STA 8683-70
Nitrate (No_3^-), mg/dm³, max.	10	30	-	STA 8900/1-71
Nitrate (No_2^-), mg/dm³, max.	1	3	-	STA 9800-71
Calcium, mg/dm³, max.	150	200	300	STA 3662-62
Chlorine(free residual Cl_2), mg/dm³, max.	0.005			STA 6364-78
Chloride, mg/dm³, max.	250	300	300	STA 8663-70
Carbon dioxide (free), mg/dm³, max.	50			STA 3263-61
Phenol (stream extraction, C_6H_5OH),mg/dm³, max.	0.001	0.02	0.05	STA 7167-65
Iron (total), mg/dm³, max.	0.3	1	1	STA 8634-70
Phosphorus, mg/dm³, max.	0.1			STA 10064-75
Hydrogen sulphide and sulphide (S^{2-}), mg/dm³, max.	-	-	0.1	STA 7510-66
Magnesium, mg/dm³, max.	50	100	200	STA 6674-77
Magnesium, mg/dm³, max.	0.1	0.3	0.8	STA 8662-70
Desolved oxygen, mg/dm³, min.	6	5	4	STA 6536-88
Petroleum products, mg/dm³, max.	0.1			STA 7877-87
Suspended solids dried at 105 ℃	750	1,000	1,200	STA 9187-84
Sodium, mg/dm³, max.	100	200	200	STA 8295-69
Biochemical oxygen demand (BOD_5) mg/dm³, max.	5	7	12	STA 6560-82
Chemical oxygen demand (COD), mg/dm³, max.				
- permanganate method	10	15	25	STA 9887-74
- dichromate method	10	20	30	STA 6954-82
Sulpate, mg/dm³, max.	200	400	400	STA 8601-70

Note : The quality conditions for water of category III correspond to requirments related to the bilological processes which ensure self-purification.

Table 3.6.3 - A3 Romanian Standards on Specific Chemical Determinants of Water.

Determinant			Admissible Value Quality category I	II	III	Method of Analysis
Silver			0.01			STAS 8190-68
Arsenic			0.01			STAS 7885-67
Barlm			1.0			STAS 10250-75
Cadmium			0.001			STAS 7852-80
Cyanide			0.01			STAS 7685-79
Cobalt			1			STAS 8288-69
Chromium	trivalent		0.5			STAS 7884-67
	hexavalent		0.05			STAS 7884-67
Copper			0.05			STAS 7795-80
Anionic deteqents			0.5			STAS 7576-66
Fluoride			0.5 *			STAS 8910-71
Polycyelicaromatic hydrocarbons			0.0002			STAS 8910-71
Mecury			0.001			STAS 8045-79
Molybdenum			0.05			STAS 11422-84
Nickel			0.1			STAS 7987-67
Pesticides	herbicide	triazine	0.001			STAS 7987-67
		triazinone	0.001			STAS 7987-67
		toluidine	0.001			STAS 7987-67
	insecticides	organochlorine	0.0001			STAS 12560-88
		organophosphorus	-			STAS 12560-88
		organometallic	-			STAS 12560-88
	nitro-delivatives		-			STAS 12560-88
Load			0.05			STAS 8637-79
Selenium			0.01			STAS 12663-88
Zinic			0.03			STAS 8314-87

Source: STAS European Bank for Reconstruction and Development, 1992.

Table 3.6.6-A1 Consumption of Industrial or Agricultural Water in the Siret River Basin in 1988 and 1993

(Unit: 10^3 m^3)

Water Users	Locality	1988	1993	Ratio
Ambro	Suceava	30,275	12,757	42.1%
IFA	Suceava	35,520	0	0.0%
PETROCART	Piatra Neamt	10,626	4,026	37.9%
FIBREX	Savinesti	156,112	75,378	48.3%
DANUBIANA	Roman	3,830	1,285	33.6%
PETROTUB	Roman	13,718	4,855	35.4%
LETEA	Bacau	40,700	26,728	65.7%
SOFERT	Bacau	24,320	17,653	72.6%
"RAFO"	Onesti			-
COROM	Onesti	73,900	28,238	38.2%
CHIMCOMPLEX	Onesti			-
RAFINARIA	Darmanesti	9,550	6,690	70.1%
RENEL	Borzesti	200,500	70,166	35.0%
BRANCART	Adjud	22,200	2,858	12.9%
SCELIF	Braila	174,706	33,710	19.3%
SCELIF	Bacau	37,459	0	0.0%
SCELIF	Neamt	17,118	0	0.0%
SCELIF	Suceava	8,993	0	0.0%
VERMATA	Braila	21,600	0	0.0%
PISCICOLA	Neamt	19,460	0	0.0%

Source : Apele Romane R.A., Filiala, Bacau

Table 3.6.6-A2 Water Quality in the Trotus and Siret Rivers between 1984 and 1993

(Unit : ppm except pH)

Metal / Indicator	Year	The Trotus at Adjud							The Siret at Cosmesti						
		1984	1988	1989	1990	1991	1992	1993	1984	1988	1989	1990	1991	1992	1993
Fe	Min.	2.8		0	0.22	0.3	0.31	0.33	0.05		0.12	0.2	0	0.03	0.07
	Max.	5.5		1.2	1.5	1.16	0.88	0.63	14.5		0.97	0.8	0.87	0.29	0.66
	Med.	4.5		0.25	0.57	0.51	0.49	0.48	6.81		0.51	0.4	0.27	0.13	0.35
Mn	Min.	0.16							0.09						
	Max.	0.32							0.87						
	Med.	0.21							0						
Zn	Min.	0.15							0.045						
	Max.	1.31							0.33						
	Med.	0.37							0.21						
Cu	Min.	0.026							0.016						
	Max.	0.056							0.07						
	Med.	0.046							0.036						
Cr	Min.	0.0007							0.009						
	Max.	0.036							0.08						
	Med.	0.0145							0.025						
Cd	Min.	0.0043							0.0011						
	Max.	0.0061							0.0056						
	Med.	0.0051							0.004						
Pb	Min.	0.042					0.008		0.014						
	Max.	0.38					0.093		0.046						
	Med.	0.166					0.036		0.029						
Hg	Min.	0.5							0.1						
	Max.	26.8							0.32						
	Med.	13.83							0.18						
Ar	Min.	0.005							0.006						
	Min.	2.11							0.14						
Al	Max.	3.73							2.18						
	Med.	2.77							1.16						
pH	Med.		7.2	7.8			7.7	7.4		7.8	7.6			7.7	7.4
BOD5	Med.		15.70	15.45			6.39	4.70		7.15	12.84			7.04	4.90
COD	Med.		36.50	40.80			27.94	12.80		21.50	22.40			8.61	11.60
NH4	Med.		3.88	3.59			1.87	0.90		5.80	5.30			2.21	0.90
Fe2	Med.		0.52	0.35			0.50	0.45		0.85	0.50			0.13	0.35
Phenols	Med.		0.16	0.10			0.10	0.00		0.01	0.03			0.01	0.02
Residual	Med.		13.60	36.10			15.80	11.60		19.50	17.30			19.50	7.20

Note: Inventory of Yearly Concentration Values Found in Trotus and Siret Rivers for Fe and Pb Between 1989 and 1993 - Minimum, Maximum, and Average Values

Source: ICIM / National Monitoring System for Water Quality (SNSCA)

Table 3.6.6-A3 Annual Average of Goundwater Quality in Adjud - Focsani Sector 1988/89 and 1992/93

The Siret River Sector

Sr. No.	Name of Station	Well No.	Year	Annual Average (in ppm) NO3	NO2	Cl	pH	Fe	NH4
1	Adjudu Vechi	F8	1988	1.80	0.024	82	7.4	0.16	0.78
			1989	5.54	0.022	139	7.4	0.15	0.45
			1992	1.51	0.025	50	7.5	0.28	-
			1993	20.90	0.055	35	7.6	0.32	0.12
2	Adjudu Vechi	F7 R	1988	2.06	0.042	79	7.2	0.25	0.87
			1989	4.35	0.035	119	7.3	0.16	0.46
			1992	1.59	0.043	66	7.9	0.31	-
			1993	42.90	0.050	49	7.7	0.32	0.60
3	Ciorani	F1	1988	10.00	0.024	57	6.5	0.38	-
			1989	11.00	0.043	53	6.8	0.90	-
			1992	8.90	0.164	35	6.8	0.28	-
			1993	5.05	0.028	113	7.4	0.27	0.20
4	Ciorani	F1	1988	14.00	0.022	63	7.2	0.15	-
			1989	10.33	0.133	120	6.8	1.31	1.13
			1992	4.30	0.038	138	7.3	0.60	-
			1993	3.30	0.040	71	7.4	0.52	0.24
5	Cosmesti	F4	1988	9.55	0.106	91	7.0	1.21	0.60
			1989	12.43	0.034	154	7.0	0.60	0.73
			1992	4.60	0.040	111	7.3	0.99	-
			1993	5.17	0.048	126	7.3	0.47	1.29

The Trotus River Sector

Sr. No.	Name of Station	Well No.	Year	Annual Average (in ppm) NO3	NO2	Cl	pH	Fe	NH4
6	Negoesti	F2	1988	2.38	-	162	7.4	0.18	-
			1989	1.92	0.023	190	7.4	0.24	0.16
			1992	2.75	0.025	69	3.8	0.16	-
			1993	4.00	0.020	59	7.7	0.16	-
7	Negoesti	F3	1988	2.31	-	101	7.3	0.18	-
			1989	1.85	-	107	7.3	0.24	-
			1992	4.53	0.026	36	7.3	0.23	-
			1993	1.75	0.030	36	7.8	0.90	1.20
8	Stefan cel Mare	F1	1988	4.07	-	112	7.1	0.18	-
			1989	2.33	0.020	142	7.2	0.24	0.28
			1992	2.20	0.035	45	7.2	0.15	-
			1993	2.00	0.020	51	7.7	0.40	-
9	Stefan cel Mare	F4	1988	3.07	-	199	7.4	0.17	-
			1989	2.85	-	266	7.4	0.16	-
			1992	2.97	0.012	45	7.5	0.17	-
			1993	1.50	0.030	41	7.6	0.23	-
10	Cornatel	F4	1988	2.69	-	155	7.4	0.22	-
			1989	1.77	0.011	94	7.3	0.23	0.20
			1992	6.20	0.090	410	7.2	0.22	-
			1993	3.80	-	138	7.9	-	1.20
11	Cornatel	F2	1988	3.48	-	90	7.4	0.19	-
			1989	-	-	-	-	-	-
			1992	4.30	0.063	92	7.4	0.17	-
			1993	15.70	0.030	46	7.6	0.18	-
12	Adjudu Vechi	F2	1988	2.00	0.036	170	7.5	0.18	-
			1989	1.95	0.106	141	7.3	0.23	0.40
			1992	2.43	0.013	65	7.8	0.13	-
			1993	10.37	0.253	44	7.9	0.10	-

The Putna River Sector

Sr. No.	Name of Station	Well No.	Year	Annual Average (in ppm) NO3	NO2	Cl	pH	Fe	NH4
13	Mircestii Vechi	F3	1988	10.30	0.034	193	7.5	-	-
			1989	8.40	0.018	238	6.9	0.52	-
			1992	9.77	0.035	231	7.4	0.30	-
			1993	7.53	0.140	441	7.5	0.45	-
14	Mircestii Vechi	F4	1988	10.35	0.034	208	7.2	0.07	-
			1989	8.45	0.020	252	7.0	0.32	-
			1992	9.90	0.037	309	7.4	0.25	-
			1993	8.60	0.148	210	7.6	0.56	-
15	Botarlau	F2	1988	6.73	0.031	125	6.9	0.30	0.06
			1989	7.77	0.074	219	6.9	0.23	0.56
			1992	7.10	0.000	158	7.3	0.44	-
			1993	2.10	0.020	132	7.3	0.52	0.07
16	Botarlau	F1	1988	9.13	0.044	260	6.8	0.28	0.33
			1989	10.33	0.101	251	6.8	0.15	0.57
			1992	12.93	0.026	324	7.2	0.56	-
			1993	-	-	-	-	-	-
17	Calieni	F2	1988	6.20	0.073	70	7.5	0.75	1.59
			1989	7.50	0.064	97	7.9	0.09	0.60
			1992	8.95	0.056	201	7.6	0.45	-
			1993	7.90	0.050	318	7.4	0.98	1.88
18	Calieni	F1	1988	-	-	-	-	-	-
			1989	-	-	-	-	-	-
			1992	4.60	0.018	230	7.9	0.36	-
			1993	9.00	0.036	225	7.3	0.10	1.17

Source : Apele Romane, 1994

Table 3.6.7-A1 Review of Emission Sources and Water Quality Indicators Upstream the Study area

Description					Impact Assessment					
Location		Categorization			Emission Standard		Impact	Consequences of Failure	Overall Impact	Rank
Name	River/ Tributary	Emission Type	Ground or Surface Water	Type of Impact	Quality (A)	Quality (B)	Magnitude of Impact (C)	(D)	A+B+C+D	
SC Vrancart, Adjud	Siret	I	S	A/E	1	5	1	1	8	32
Svinprod, Bacau	Siret	A	S	E	1	10	5	5	21	13
Marchim SA Marasesti	Siret	I	S	E	1	1	1	5	8	27
Piatra Neamt WWTP	Bistrita	M	S	H/A/E	5	1	5	5	16	19
Sofert SA Bacau	Bistrita	I	S	H/A/E	1	5	5	5	16	20
Bacau WWTP	Bistrita	M	S	H/A	1	5	5	5	16	21
Fibrex, Savinesti	Bistrita	I	S	H/A/E	5	5	5	10	25	7
SC Pergodur, Piatra Neamt	Bistrita	I	S	H/A/E	10	10	10	5	35	2
SC Petrocart, Piatra Neamt	Bistrita	I	S	H/A/E	1	10	10	10	31	3
SC Letea SA Bacau	Bistrita	I	S	H/A/E	10	10	5	5	30	4
SC Carom SA Onesti	Trotus	I	S	A/E	10	10	5	5	30	5
Refinery, Darmanesti	Trotus	I	S	A/E	5	10	5	5	25	9
SC Rafo, Onesti	Trotus		S	A/E	5	10	5	5	25	10
SC Chim Complex SA Onesti	Trotus	I	S	A/E	5	5	5	5	20	16
Onesti WWTP	Trotus	M	S	A/E	5	5	1	1	12	26
CPL Comanesti, Comanesti	Trotus	I	S	A/E	5	1	1	1	8	33
SC Ambro, Suceava	Suceava	I	S	E/A	10	5	5	5	25	8
Suceava WWTP	Suceava	M	S	E/A	10	1	1	1	13	22
Focsani WWTP	Suceava	M	S	E	10	5	5	1	21	15

Emission Type
M = Mnicipal
I = Industrial
A = Agricultural

Type of Impact
H = Health
A = Agricultural
E = Ecological
I = Industrial
R = Recreational

Emission Standard	Moderate (1)	Poor (5)	Unacceptable (10)
Quantity(A)			
Dilution	>50:1	>10:1<50:1	<10:1
Quality (B)			
BOD mg/lit	<60	>60<160	160
COD mg/lit	<100	>100<750	>750
Ammonium mg/li	<20	>20<100	>100
Phenols mg/lit	<0.1	>0.1<0.5	>0.5
Petroleum mg/lit	<0.4	>0.4<3.0	>3.0

Magnitude Impact (C)
1 = No Impact
5 = Moderate Impact
10 = Severe Impact

Risk/Result Failure(D)
1 = Well Within Capacity
5 = Moderate Risk
10 = Critical

Source: European Bank for Reconstruction and Development,1992

Table 3.6.7-A2 Total Industrial Wastewater Load Upstream in 1991

Location & Plant	Process	Wastewater Quantity & Quality						Receiving Water		Critical Parameter	Ratio
		Flow tcm/d	BOD ton/d	COD ton/d	Ammo. ton/d	Phenol kg/d	Petrol. kg/d	River Flow tcm/d	Dilution	Critical Parameter	Load/Class II /Rec. Flow
SUCEAVA											
SC Ambro	Pulp and Paper	37	9.8	33.3				SEWER			
Svinprod, Veresti	Pig Farm	2.8	0.1	3.4				164.2	59	COD	1.02
PIATRA NEAMT											
SC Pergodur	Pulp and Paper	51.9	7	42.3		16		121	2	COD	17.48
SC Petrocart	Petro-chemicals	53.6	1.2	11.6		1	4,556	3,456.00	64	Petr.Prod	13.18
Fibrex,Savinesti	Chemical Platform	233.3	13	22.1	5.8	5		3,456.00	15	BOD,Amm	0.54
BACAU											
SC Letea SA	Pulp and Paper	73.5	5.1	117.6				712.8	10	COD	8.25
Sofert SA	Fertilizer	11	0.8	1.6	0.6			3,456.00	314	Ammonia	0.05
Svinprod, Bacau	Pig Farm	3.5	0.6	3.2	1.6			712.8	204	Ammonia	0.67
ADJUD											
SC Vrancart SA	Paper	16.6	2.4	8.8				2,203.20	133	BOD,COD	0.2
COMANESTI											
CPL Comanesti	Sawmills	8.8	0.5	1				170	19	BOD	0.39
DARMANESTI											
Rafinaria	Refinery	14.4	0.3	1.8			360	170	12	Petr.Prod	21.18
ONESTI											
SC Rafo	Refinery 1	9.8	1.4	1.8		5		311	32	Petr.Prod	4.73
	Refinery 2	8	1.2	1.7		10	147	311	39	Petr.Prod	6.95
SC Chim Complex SA	Chemicals, Polymers	28.8	1.2	2.4		1	216	311	11	BOD	0.56
SC Carom SA	Petro-Chem Complex	36	3.6	4		36		311	9	Phenols	5.79
MARASESTI											
Marchim SA	Detergents & Clues	5.3	1	1.6				SEWER			

Source : European Bank for Reconstruction and Development,1992

Table 3.6.7-A3 Characterization of Major Industrial Pollution Sources in the Study Area in 1992

Industrial Pollution Source/Locality	Activity	Wastewater Quantity (lit/s)	Main Types of Pollutants	Quantity Of Discharged Pollutants (kg/day)	Wastewater Treatment Facilities
S.C. Marchim / Marasesti	chemicals	61.3	S.S. / solid matter CCO-Mn detergent	1,200 5,600 947 22	pre-epuration
S.A. Suintest / Focsani	livestock pigs	10.4	S.S. CCO-Mn ammonia phenols	778 490 148 0.6	mechanical / biological epuration
ROMSEH / Focsani	tool machines	0.7	S.S. solid matter	8.0 59.0	pre-epuration
LAMINOR / Focsani	metallurgy	4.0	S.S.	31.0	pre-epuration
MOPAF / Focsani	wood processing	26	S.S. solid matter CCO-Mn ammonia chloride	700 6,360 252 13 2,990	pre-epuration
PUFESTI S.C. Agroind	livestock cows	-	-	-	-
GAROAFA SC ROMVITIS	livestock cattle	-	-	-	soil fertilisation
GAROAFA OJRSA	sheep about 200 heads	-	-	-	soil fertilisation
GAROAFA SC VERITAS	closed for treat-ment 2/3 years	-	-	-	-

Source: Vrancea Environmental Branch Agency

Table 3.6.7-A4 Total River Loads of Domestic Wastewater in the Study Area in 1991

Name Of River	Towns / Villages	Total Domestic Load (theoretical)					Sewered		Swage & Treated WWTP Rffluent (theoretical)						Untreated Effluent			Total Load on River Now		
		Population ('000)	Flow (3) (tcmd)	BOD (kg/d)	SS (5) (kg/d)	NH4 (6) (kg/d)	% (1)	Population ('000)	% (2)	Population ('000)	BOD (kg/d)	SS (kg/d)	NH4 (kg/d)	BOD (kg/d)	SS (kg/d)	NH4 (kg/d)	BOD (kg/d)	SS (kg/d)	NH4 (kg/d)
Siret	Adjud	20	6.3	1,096	1,320	142	61%	12	67%	8	336	216	44	221	266	29	557	482	72
	Marasesiti	12	3.8	670	806	87	56%	7	80%	5	91	109	12	76	91	10	166	200	22
	Villages	47	13.0	2,263	2,724	293	0%	0	0%	0	0	0	0	0	0	0	0	0	0
	Sub-total	79	23.1	4,029	4,850	522		19		13	427	325	56	297	357	39	723	682	94
Trotus	Cosmesti	25	7.8	1,355	1,632	176	46%	12	100%	12	466	299	60	0	0	0	466	299	60
	Darmnesti	14	4.3	751	904	97	50%	7	0%	0	0	0	0	375	452	49	375	452	49
	Tirgu Ocna	16	5.0	869	1,047	113	37%	6	100%	6	97	117	13	0	0	0	97	117	13
	Moinesti	26	7.9	1,382	1,664	179	52%	14	50%	7	109	131	14	367	436	47	470	566	61
	Onesti	59	18.3	3,191	3,842	414	90%	53	35%	19	750	481	97	1,857	2,235	241	2,607	2,716	338
	Villages	179	55.5	9,674	11,645	1254	0%	0	0%	0	0	0	0	0	0	0	0	0	0
	Sub-total	319	98.8	17,222	20,734	2233		92		44	1,422	1,028	184	2,599	3,123	337	4,015	4,150	521
Susita	Panciu	10	3.1	540	650	70	60%	6	70%	4	68	82	9	97	117	13	165	199	21
	Villages	13	4.0	692	833	90	0%	0	0%	0	0	0	0	0	0	0	0	0	0
	Sub-total	23	7.1	1,232	1,483	160		6		4	68	82	9	97	117	13	165	199	21
Milcov	Focsani	101	31.4	5,470	6,585	709	80%	81	67%	54	878	1,057	114	1,442	1,735	187	2,320	2,792	301
	Villages	391	121.2	21,120	25,423	2738	0%	0	0%	0	0	0	0	0	391	0	0	0	0
	Sub-total	492	152.6	26,590	32,008	3447		81		54	878	1,057	114	1,442	2,126	187	2,320	2,792	301

Notes : Population by population census 1991

(1) Sewered population by Institute of Sewerage and Water Management

(2) Sewered and treated flow by branch agency data or assumed at 100.5, if none available

(3) Total flow '000 m3/d @310 lit/cap/day

(4) Domestic BOD load kg/day @54 g/head/day

(5) Domestic SS load kg/day @65 g/head/day

(6) Domestic Ammonia load kg/day @7 g/head/day

Source : European Bank for Reconstruction and Development, 1992

Table 3.6.7-A5 Use of Production Forest in the Study Area in 1993

	Forest Area (ha)	State Property (%)	Private Property (%)	Wood Cut (m^3/year)
Ruginesti	3,200	87	13	3,200
Paunesti	2,850	87	13	3,900
Pufesti	770	97	3	450
Movilita	1,250	65	35	300
Straoane	2,400	86	14	3,300
Fitionesti	886	55	45	4,400
Tifesti	335	75	25	550
Bolotesti	4,800	99	1	11,450
Panciu	4,450	93	7	7,300
Marasesti	2,440	98	2	2,300
Odobesti	3,455	99	1	3,750

Source: ROMSILVA, Focsani branch, 1994

Table 3.6.7-A6 Most Common Diseases and Types of Treatments in Vineyards in the Study Area

(Unit: lit or kg / ha / year)

	Lobesia botrana	Clysia ambiguela	Tetranicus Sp	Plasmopara Viticola	Uncinule pacator
$CuSO_4$				1,500 lit solution 8%	
Zolone	7-9 lit	7-9 lit	7-9 lit		
Decis	1-1.5 lit	1-1.5 lit	1-1.5 lit		
Ridomil				10-12 kg	
Turda cupral				30-36 kg	
Kumulus					4.5-5.4 kg
Captadin					10-12 kg

Note: Indication of recommended quantities
Source: OSPA, Focsani

Table 4.2.2 - A1 Characteristics of Irrigation Block.

No. crt.	Irrigation Sector	Total Area (ha)	Distribution on Irrigation Method (ha)				Q s.p.p (l/sec)	H s.p.p (m)	Design Year	Notes	ℓ/sec/ha
			Sprinkler (S)	Furrows (F)	Mixed (M) = (S) + (F)	Drip (ha)					
1	1	540	272/268	0	0	0	177/174	65/45	1990	CP 1/CP 2; SPP 1	0.65
2	2	680	680	0	0	0	260/215	44/61	1988/1991	designed again in 1991; SPP 2	0.68
3	3	695	401	0	0	0	65 247	56 60	1991	CP 1 - SPP 3a CP 2 - SPP 3a	0.77
			494	0	0	0	377	45	1991	SPP 3b	0.76
4	3.A	1,187	1,187	0	0	0	795		1989	SPP 3A-I, SPP 3A-II, AE - A 7 computed on 0.67 l/s, ha	0.67
5	4	450	450	0	0	0	301		1988	computed on 0.67 l/s, ha; SPP 4	0.67
6	4.A	530	530	0	0	0	315	48	1989	SPP 4A	0.59
7	5	490	490	0	0	0	190/210	57/35	1991	SPP 5	0.83
8	6	470	470	0	0	0	315		1989	computed on 0.67 l/s, ha designed at Braila; SPP 6	0.67
9	7	420	420	0	0	0	156 170	46 16	1989	for sprinkler for furrows; supplied by SPP 7	0.78
10	8	530	0	0	530	0	355		1989	computed on 0.67 l/s, ha designed at Braila; SPP 8	0.67
11	8.A	300	300	0	0	0	210		1989	computed on 0.67 l/s, ha designed at Braila; SRP III + 8 A	0.67
12	9	420	177	25	218	0	96 64		1990	for sprinkler for furrows; SRP III + 9	0.90
13	9.A	530	0	0	530	0	180 200	54 26	1989	for sprinkler for furrows; SRP IV + 9 A	0.72
14	10	593	593	0	0	0	360	98	1989	SPP 10	0.64
15	11	401	401	0	0	0	304	68	1988	SPP 11	0.76
16	12	684	684	0	0	0	433/94	40/72	1990	SPP 12	0.77
17	13	420	420	0	0	0	282	50	1990	SPP 13	0.67
18	14	762	602	160	0	0	130 72 126 40 112	47 15 38 15 48	1989	for sprinkler for furrows; supplied by SPP 14 for sprinkler for furrows; supplied by SPP 14 A 1 for sprinkler, supplied by SPP 14 A 2	0.63
19	14.A	736	736	0	0	0	493		1989	computed on 0.67 l/s, ha; SPP 14 A	0.67
20	15	350	350	0	0	0	256	49	1991	SPP 15	0.73
21	15.A	570	570	0	0	0	400	55	1988	SRP VII + 15 A	0.70
22	16	530	530	0	0	0	369		1989/1991	designed again in 1991; SPP 16	0.70
23	17	300	300	0	0	0	200	46	1988	SPP 17	0.67
24	17.A	465	465	0	0	0	312		1989	computed on 0.67 l/s, ha; SPP 17 A	0.67
25	18	848	608 240	0	0	0	400 160	58 53	1990	SPP 18 SPP 18B	0.66
26	18.A	550	550	0	0	0	350	55	1990	SRP VII + 18 A	0.64
27	19	418	418	0	0	0	290	50	1990	SPP 19	0.69
28	20	640	640	0	0	0	430		1989	computed on 0.67 l/s, ha; SPP 20	0.67
29	20.A	200	200	0	0	0	134		1989	SPP 20 A	0.67
30	21	113	113	0	0	0	170	58	1989	main supply by SPP 20; SPP 21	1.50
31	22	287	287	0	0	0	213	45	1990	SPP 22	0.74
32	22.A	367	367	0	0	0	280	50	1989	SPP 22 A	0.76
33	23	489	489	0	0	0	340		1989	SPP 23	0.70
34	24	412	412	0	0	0	276		1989	computed on 0.67 l/s, ha; SPP 24	0.67
35	25	273	273	0	0	0	183		1989	computed on 0.67 l/s, ha; SPP 25	0.67
36	25.A	512	512	0	0	0	343		1990	computed on 0.67 l/s, ha; SPP 25 A	0.67
37	26	620	620	0	0	0	423	60	1990	SPP 26	0.68
38	27	600	600	0	0	0	393	56	1989/1991	designed again in 1991; SPP 27	0.66
39	28	1,255	1,255	0	0	0	800	83	1989	SPP 28	0.64
40	28.A	647	647	0	0	0	433		1989	computed on 0.67 l/s, ha; SRP IX + 28 A	0.67
41	29	608	608	0	0	0	397	54	1990	SPP 29	0.65
42	30	939	939	0	0	0	700	75	1989	SPP 30	0.75
43	31	880	880	0	0	0	592	85	1991	SPP 31	0.67
	TOTAL	23,991	21,908	185	1,278	0					

Source: ISPIF - SA

Table 4.2.2-A2 Design Data on Pumping Stations (1 of 6)

No.	Name of Stations	Year of Starting Work	Location - Secon - Km	Type of Station (from Construction Point of View)	Design Condition										Main Equipments										Auxiliary Equipment							
					Discharge	Volume of Pumping Water in the Year with 80% Prevalent	Service Area	Floor Elevation	Suction Levels			Outlet Levels			Total Heads	Pump				Motor			Total HP	Quantities	Pump			Motor			Quantities
									Max.	Design	Min.	Max.	Design	Min.		Type	Rotation	Max. Shaft Power	Pump HP. at Mark Head	Type	Power	Voltage			Position	Type	Rotation	Power	Voltage		
					(l/s)	(thousands m^3)	(ha)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)		(rpm)	(Kw)			(Kw)	(Kv)		(sets)			(rpm)	(Kw)	(Kv)	(sets)
1	SKP I		CD4	CUD+CIET	1940	7,066	3665 (3,095)	-	108.32	-	102.40	140.30	-	-	48	MV40R	1500	360	72	MIB	315	6	67	3	Drainage	EPET95	3000	4	0.4	1
																									Compressor	EC1	1000	11	0.4	1
2	SKP IA		River Siret	ALB+CIET	1300	2,397	1050	-	79.30	-	77.30	82.80	82.54	81.30	7.5	Brotee 350	750	38	83	MIB3	37	0.4	78	3	Vacuum	MIL40	1450	5.5	0.4	2
3	SKP II		CD3	ALB+CIET	560	2,043	796 (885)	-	138.5	138.9	138.5	180.1	180.0	179.5	45	NDS350-300-400	1450	187	84	MIB3	200	0.4	78	3	Compressor	EC1	1000	11	0.4	1
4	SKP III		CD6	CUD+SSTC	1660	3890	1875 (1784)	141.00	140.30	140.01	139.50	-	184.00	184.11	90	MV353×3	1450	136	75	MIB2	160	0.4	69	3	Drainage	EPET95	3000	4	0.4	1
																MA300×6	1450	50	74	MIB3	55	0.4		3	Compressor	EC1	1000	11	0.4	1
5	SKP IV		CD4		1860	5,806	2870 (2804)	-	106	104.5	108.5	141.8	141.7	140.7	45	NDS600-450-810	1000	346	80	MIB3	400	6	75	4	Compressor	EC1	1000	11	0.4	1
6	SPR V		CM Siret-Baragan Km 5+300	CUS+SSTC	5379	13,830	(6439)	71.20	72.70	71.54	71.50	-	104.96	CD6	40	NDS800-600-960	800	780	87	MIB3	800	6	88	2	Vacuum	MIL	1450	15	0.4	2
					6900	22,000	(9931)	-	-	-	-	-	100.96	CD7	30	NDS800-600-910	800	600	86	MIB3	800	6	61	4	Cooling	AN150	1450	15	0.4	2
																									Drainage	EPET45	3000	4	0.4	2
																									Compressor	EC1	1000	11	0.4	2
7	SKP VI		CD8	CUD+SSTC	580	2,188	1800 (956)	-	115.3	114.5	113.8	130.5	130.5	130.8	37	MV353×3	1450	87	75	MIB3	75	0.4	89	4	-	-	-	-	-	-	-
																MA300×4	1450	35	72		45	0.4		1							
8	SKP VII		CD7 Km 5	CUD+SSTC	3500	16,547	5637 (7349)	-	100.15	99.8	98.4	117.1	117.0	115.5	25	MV700	1000	298	80	MA52	400	6	75	4	Compressor	EC1	1000	11	0.4	1
9	SKP VIII		CD8A	ALB+CIET	1200	5,061	1701 (2217)	-	116.1	115.7	114.8	129.0	128.7	130	18	Brotee 400	1000	101	82	MIB2	110	0.4	76	3	-	-	-	-	-	-	-
10	SKP IX		C.M Siret-Baragan	ALB+CIET	1100	4,457	2040	-	73.2	72.4	66.8	89.0	89.3	88.7	21	NDS400-350-480	1000	86	87	MIB2	110	0.4	74	4	Vacuum	MIL	1450	15	0.4	2
																									Compressor	EC1	1000	11	0.4	1
11	SPP 1		CD8(T)	CUD+SSTC	177	571	272	-	137.9	137.3	137.2	-	202	-	66	MA390×5	1480	55	70	MIB	55	0.4	69	3	Compressor	EC1	1000	5.5	0.4	1
																MA300×6	1450	50	75	MIB	55	0.4		1						
					174	563	268	-					183	-	38	MV353×2	1450	67	73	MIB	75	0.4		3	Drainage	EPET95	3000	4		1
																MA300×3	1450	30	73	MIB	37	0.4		2						
12	SPP 2		CD5 Km 5+400	CUD+SSTC	250	787	375	-	138.7	137.9	137.1	-	179	-	44	MV253×2	1450	65	72	MIB3	75	0.4	86	2	Compressor	EC1	1000	5.5	0.4	1
																MA300×4	1450	35	73	MIB3	45	0.4	86	2						
					215	682	325		138.7	137.9	137.1	-	196	-	61	MA200×5	1450	40	75	MIB	55	0.4	89	1	Drainage	EPET95	3000	4	0.4	1
13	SPP 3a		CD5	CUD+SSTC	385	1,380	895	180	179.8	179.4	179.1	-	230	-	53	MV353×2	1450	82	75	MIB	110	0.4	69	2	Drainage	EPET95	3000	4	0.4	1
																MA300×5	1450	49	74	MIB	55	0.4		2						
14	SPP 3b		CD5	CUD+SSTC	385	1,380	895	180	179.8	179.4	179.1	-	230	-	53	MV353×2	1450	82	75	MIB	110	0.4	69	2	Drainage	EPET95	3000	4	0.4	1
																MA300×5	1450	49	74	MIB	55	0.4		2						
15	SPP 3A1		CD1	CUD+SSTC	226	976	465	-	84.5	84.2	83.5	-	151	-	89	MV253×3	1450	124	78	MIB	160	0.4	76	2	Drainage	EPET95	3000	4	0.4	1
																MA300×6	1450	50	75	MIB	55	0.4		2						
16	SPP 3A2		CD1	CUD+SSTC	310	830	300	-	80.1	79.4	79.1	-	148	-	71	MA200×7	1450	51	75	MIB	75	0.4	69	4	-	-	-	-	-	-	-
17	AE-A7		CD1	CUD+SSTC	33	108		-	80.1	79.95	79.85	-	137	-	56.5	MA150×8	1450	-	-	MIB	37	0.4	-	1	-						
18	SPP 4		CD3	CUD+SSTC	295	945	450	-	140.2	140.1	139.4	-	170	-	33	MA300×3	1450	29	76	MIB	37	0.4	69	3	-	-	-	-	-	-	-
19	SPP 4A		CD3	ALB+CIET	400	1,113	580 (530)	-	139.1	138.9	138.2	-	186.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	SPP 5		CD6 Km 3+445	CUD+CIET	196	564	240	-	184.7	183.4	183.0	-	237.8	-	57	MV353×2a	1500	100	77	MIB	132	0.4	69	1	Compressor	EC1	1000	11	0.4	1
																MA300×3	1500	43	74	MIB	55	0.4		2						
					185	535	250	-	184.7	183.4	183.0	-	215.8	-	36	MV353×2c	1500	68	74	MIB	75	0.4	88	1							
																MA300×3	1500	34	75	MIB	37	0.4		2						
21	SPP 6		CD6	CUD+CIET	304	887	470	-	140.30	-	139.43	-	188	-	48	MA300×5	1450	43	74	MIB3	55	0.4	88	3	Drainage	EPET95	3000	4	0.4	1
22	SPP 7		CD4 Km 4+636	CUD+CIET	136	387	420	-	104	103.5	103.8	-	158	-	69	MA300×3	1500	44	74	MIB	55	0.4	87	3	-	-	-	-	-	-	-
					170								120		15	MA300×2	1500	18	73	MIB	22	0.4		3							
23	SPP 8		CD8	CUD+CIET	308	1,113	530	-	184.71	-	184.5	-	252	-	80	MV353×3	1450	121	76	MIB	160	0.4	71	2	Drainage	EPET95	3000	4	0.4	1
																MA300×4	1450	49	76	MIB	55	0.4		2						
24	SPP 8A(*)		CD8	CUD+SSTC	550	1,512	830	141.80	140.30	140.01	139.36	-	190	-	-	MV353×3	1450	123	75	MIB2	160	0.4	89	3	Drainage	EPET95	3000	4	0.4	1
25	SPP 9(*)						(720)						160			MA300×6	1450	50	75	MIB3	55	0.4		1						

(*)NOTE : SPP 8A/SPP 9 are recommended in two pumping station

CUS + SSTC : Pumping station with pump room and control room
ALB + CIET : Outdoor horizontal pump with control room
CUD + SSTC : Bottom pit with control room (Outdoor vertical pump)
( ) of service area outside from data regarding irrigation matters (Table 3.4.3-A1)

Table 4.2.2-A2 Design Data on Pumping Stations (2 of 6)

	Valves			Overhead Crane			Pipe				Pressure Tank		Transformer			Switch Gear Connector			COSφ Condenser	Energetics Characteristics			Remarks
	Diameters	Type	Quantities	Lifting Capacity	Type	Width	Diameters	Type of Materials	Lines	Length of One Line	Volume	Quantities	Voltage	Power	Quantities	Type	Mechanism	Quantity		Consumption of Energy in the year with 50% provided	Total Installed Power	Max. Absorbing Power	
	(mm)		(nos)	(t)		(mm)	(mm)		(Number)	(m)	(m^3)	(nos)	(KV)	(KVA)	(total			(total	(KVAr)	(Kwh)	(Kw)	(Kw)	Days/hr
1	500	DM	5	-	-	-	1000 1200	M P	1 1	300 1780	30	1	20/6	1600	1	CM	-	5	0.94	1,393,998	1579	-	0.87 (0.83)
2	500	DM	5	-	-	-	1000	M	1	45	-	-	20	250	1	RG125	-	5	0.94	84,452	165	-	1.24
3	A300 R350	SM DM	3 3	-	-	-	800	P	1	1300	10	1	20	1600	1	RG400	TRAV400	-	0.94	321,173	618	543	0.89 (0.81)
4	300 250	DM DM	6 3	-	-	-	800	M	1	1900	30	1	20	1600	1	RG400 RG125	-	6 3	0.93 0.94	951,650	1517	1425	0.86 (0.82)
5	A600 B600	SM DM	4 4	-	-	-	1200	-	1	2300	30	1	20	1000	2	CM	-	4	0.94	1,080,060	1915	-	0.89 (0.86)
6	A800 B800 A900 B600	DM DM DM DM	3 3 4 4	12.5	M	10500	1800 1800	M M	1 1	2300 1800	30 30 30	1 1 1	20/6 20/6	4000 4000	1 1	UN UN	DAM DAM	3 4	0.94 0.94	2,106,431 2,745,417	3662 -	- -	(0.48) (0.49)
7	300 250	DM DM	4 1	-	-	-	900	P M	1 1	1080 102	-	-	20	-	1	RG300 RG125	- -	4 1	0.94 0.9	318,865	940	-	0.86 (0.80)
8	800	DM	4	-	-	-	1400	M P	1 1	1130	30	1	20	1000	3	CM6	-	4	0.94	1,523,719	1600	-	(0.62) (0.68)
9	A700 R500	SM DM	3 3	-	-	-	1000 1000	P M	1 1	1100 50	-	-	20	1000	1	RG250	-	3	0.94	328,605	780	-	(0.71) (0.54)
10	A800 R400	DM DM	4 4	-	-	-	1000	P	1	3300	30	1	20	1605	1	RG260	-	4	0.94	531,587	1014	923	0.54
11	R300 R250	DM DM	2 5	-	-	-	800 400	M M	1 1	10 10	30 30	1 1	20	630	1	RG125 RG400	-	3 2	0.94 0.94	237,857	254	-	
12	300 250 250	DM DM DM	2 2 4	-	-	-	CP3 400 CP1 350	M M	1 1	10 10	30 30	1 1	20	400	1	RG300 RG125 RG125	-	2 2 4	0.94 0.942 0.948	307,480	310	254	
13	300 250	DM DM	2 2	-	-	-	800	M	2	10	-	-	20	400	1	RG250 RG125	-	2 2	0.94 0.94	293,401	334	-	
14	300 250	DM DM	2 2	-	-	-	800	M	2	10	-	-	20	400	1	RG250 RG125	-	2 2	0.94 0.94	293,401	334	-	
15	300 250	DM DM	2 2	-	-	-	400 300 250	M M M	2 1 1	10 10 10	-	-	20	630	1	RG400 RG125	-	2 2	0.94 0.943	262,295	430	382	
16	250	DM	4	-	-	-	400 350 250	M M M	1 1 1	10 10 10	-	-	20	400	1	RG200	-	4	0.942	178,651	311	257	
17																							
18	250	DM	5	-	-	-	400 200	M M	2 1	10 10	-	-	20	250	1	RG125	-	5	0.94	119,426	185	143	
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	174,978	-	-	
20	300 250 300 250	DM DM DM DM	1 2 1 2	-	-	-	300 350 -	M M -	2 1 -	10 10 -	30 30	1 1	20	630	1	RG400 RG125 RG400 RG125	- -	1 2 1 2	0.94 0.94	187,090	391	-	
21	250	DM	5	-	-	-	400	M	2	-	-	-	20/0.4	400	1	TCA	-	5	0.94	193,608	275	-	
22	250	DM	6	-	-	-	300 350	M M	2 1	10 10	-	-	20	400	1	RG125 RG100	3 3		0.94	121,968	231		
23	300 250	DM DM	2 2	-	-	-	400 400	M M	1 1	10 15	-	-	20/0.4	630	1	TCA	-	4	0.94	294,387	430	-	
24 25	300 250	DM DM	3 1	-	-	-	600 400	M M	1 1	10 10	-	-	20	-	-	RG400 RG125	-	3 1	0.93 0.94	357,821		-	

Source : JSPDF GA

Table 4.2.2-A2 Design Data on Pumping Stations (3 of 6)

No.	Name of Stations	Year of Starting Work	Location - Service - Km	Type of Source (from Construction Point of View)	Design Conditions									Main Equipments									Auxiliary Equipment						
					Discharge	Volume of Pumping Water in the Year with 30% Provision	Service Area	Floor Elevation	Suction Levels			Outlet Levels			Total Heads	Pump				Motor			Total HP	Quantities	Pump			Motor		Quantities
									Max.	Design	Min.	Max.	Design	Min.		Type	Rotation	Max. Shaft Power	Pump HP at Mod. Head	Type	Power	Voltage			Fluidizer	Type	Rotation	Power	Voltage	
					(l/s)	(thousands m³)	(ha)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)		(rpm)	(Kw)			(Kw)	(Kv)		(sets)			(rpm)	(Kw)	(Kv)	(sets)
26	SPP 9A		CD4	ALB→CIET	180 300	1,113	530	-	108.0	104.5	102.5	-	158.0 130.0	-	56 36	RDN300-150-250 AN200-150-315	3000 1500	53 25	72 82	MDB3 B6	75 30	0.4 0.4	71	3 3	-	-	-	-	-	-	-
27	SPP 10		Reservoir Cabimanati	ALB→CIET	300	1345	500 (580)	-	75	72.7	70.7	-	106	-	35	NC200-150-350 NC125-100-315	3000 3000	150 74	86 72	MDB2 MDB2	200 90	0.4 0.4	71	2 3	Vacuum	MIL40	1500	5.5	0.4	2
28	SPP 11		CM Sivri-Baragua Km 0+300	ALB→CIET	270	843	485 (602)	-	74.7	72	69.35	-	136	-	67	RDN200-150-355	3000	95	74	MDB3	75	0.4	68	3	Vacuum Compressor	MIL40 EC1	1500 1000	5.5 11	0.4 0.4	2 1
29	SPP 12		CD6A Km 1+530	CUD→CIET	430 94	1,436	884	-	184.7 184.7	184.1 184.1	184.0 184.0	-	228 227	-	44 78	MV253×2 MA200×4 MA200×7	1450 1480 1450	92 36 61	75 75 78	MDB MDB MDB	110 45 75	0.4 0.4 0.4	80 80 80	2 3 2	Compressor	EC1	1000	-	0.4	1
30	SPP 13		CD9	CUD→CIET	281	882	600 (438)	-	139.6	139.3	138.3	-	190	-	53	MA200×5	1450	46	78	MDB3	55	0.4	60	3	-	-	-	-	-	-
31	SPP 14		CD 7 Km 3+000	CUD→CIET	150 72	720	355	-	100.1	100	98.8	-	147 115	-	49 17	MA200×5 MA200×2	1450 1480	43 17	74 88	MDB3 B6	55 95	0.4 0.4	90	3 1	-	-	-	-	-	-
32	SPP 14A1		CD7 Km 0+200	CUD→CIET	150 60	521	548	-	101.9	101.9	100.7	-	140 117	-	40 17	MA200×4 MA200×2	1480 1450	43 17	74 88	MDB3 B5	45 22	0.4 0.4	80	3 1	-	-	-	-	-	-
33	SPP 14A2		CD7 (CI)	CUD→CIET	112	360	162	94.88	96.78	96.7	95.2	-	131	-	50	MA200×3	1450	43	74	MDB3	55	0.4	60	3	-	-	-	-	-	-
34	SPP 14A		CD8	CUD→SSTC	410 95	1,548	597 190	-	115.2	114.5	113.6	-	188.6 150	-	75 37	MV253×3 MA200×6 MA200×4	1450 1450 1450	155 46 37	77 72 75	MDB3 MDB3 MDB3	200 75 45	0.4 0.4 0.4	70	3 2 1	-	-	-	-	-	-
35	SPP 15		CD6 Km 1+100	CUD→CIET	256	735	350	-	115.3	114.9	114.1	-	161	-	50	MA200×5	1450	43	74	MDB3	55	0.4	60	4	-	-	-	-	-	-
36	SPP 15A		CD7 Km3	CUD→SSTC	400	1,197	615 (570)	-	100.15	99.8	98.4	-	154.8	-	57.5	MA253×2 MA200×5	1450 1450	100 41	76 75	MDB2 MDB3	125 55	0.4 0.4	70	2 3	Drainage Compressor	EPET65 EC1	3000 1000	4 11	0.4 0.4	1 1
37	SPP 16		CD9	CUD→CIET	400	1,215	530	-	139.60	138.71	136.15	-	192	-	55	MV253×3a MA200×5	1480 1450	104 41	77 75	MDB MDB	132 55	0.4 0.4	71	2 2	-	-	-	-	-	-
38	SPP 17		CD6A	CUD→CIET	200	630	300	-	117.4	117.0	115.7	-	165	-	47	MA200×5	1450	43	74	MDB3	55	0.4	60	3	-	-	-	-	-	-
39	SPP 17A		CD7	CUD→CIET	235	786	465	-	98.9	98.5	97.8	-	151	-	55	MA200×6	1450	61	73	MDB3	55	0.4	60	3	Compressor	EC1	1000	11	0.4	1
40	SPP 18		CD 10 Km 0+430	CUD→CIET	400	1,781	808 (848)	-	139	138.7	138.1	-	187	-	61	MV253×2 MA200×6	1450 1450	96 48	77 75	MDB3 MDB3	132 55	0.4 0.4	70	3 2	Drainage Compressor	EPET65 EC1	3000 1000	4 11	0.4 0.4	1 1
41	SPP 18A		CD8A	ALB→CIET	430	1,155	580 (550)	-	116.1	115.7	114.8	-	186	-	57	RDN700-150	3000	53	73	MDB3	75	0.4	67	3	Compressor	EC1	1000	11	0.4	1
42	SPP 18B		CD10 Km 2+110	CUS→SSTC	150	1,135	260	-	139	138.1	137.4	-	182	-	36	NC125-80-250	3000	50	73	-	55	0.4	90	4	Compressor Vacuum	EC1 MIL40	1000 1450	11 5.5	0.4 0.4	1 2
43	SPP 19		CD7 Km3+900	CUD→CIET	280	878	418	-	97.7	97.5	96.8	-	148	-	53	MA200×5	1450	43	75	MDB3	55	0.4	60	3	Compressor	EC1	1000	11	0.4	1
44	SPP 20		CM Sivri-Baragua Km 15+750	ALB→CIE	420	1344	840	-	74.7	72.4	69.1	-	99.5	-	38	AN500-150	1450	35	83	B5	30	0.4	75	6	Vacuum Drainage	MIL40 EPET65	1450 3000	5.5 4	0.4 0.4	2 1
45	SPP 20A		CM Sivri-Baragua Km 13+900	ALB	140	450	980 (800)	-	74.7	72.8	-	-	127.5	-	56	RDN700-150	3000	52	73	MDB3	75	0.4	67	2	Vacuum	MIL40	1450	5.5	0.4	2
46	SPP 21		CM Sivri Baragua	-	170	537	113	-	74.7	73.5	68.0	-	122	-	61	MAU 200×6	1450	81	73	MDB	55	0.4	80	3	Vacuum	MIL40	1500	5.5	0.4	1
47	SPP 22		CD7 Km 11+375	CUD→CIET	313	908	387	-	97.7	96.6	96.3	-	143	-	49	MA200×5	1450	43	74	MDB3	55	0.4	60	4	Compressor	EC1	1000	11	0.4	1
48	SPP 22A		CD8A	CUD→CIET	300	420	500 (587)	-	114.54	113.80	113	-	164	-	53	MA200×5	1450	46	75	MDB	55	0.4	60	5	-	-	-	-	-	-
49	SPP 23		CD10 Km4+430	CUD→CIET	360	1,037	480	-	133.8	133.3	132	-	171	-	50	MV253×2b MA200×4	1450 1450	84 32	76 75	MDB3 MDB3	110 45	0.4 0.4	80 60	2 2	Drainage	EPET65	3000	4	0.4	1
50	SPP 24		CD8A Km10+900	CUD→CIET	270	865	412	-	111.6	111.3	110.7	-	175	-	65	MA200×6	1450	50	76	MDB3	55	0.4	70	3	Drainage	EPET65	3000	4	0.4	1

Source : SPSP SA

Table 4.2.2-A2 Design Data on Pumping Stations (4 of 6)

	Valves			Overhead Crane			Pipe				Pressure Tank		Transformer			Switch Gear Contactor			COSs Condenser	Energetics Characteristics		
	Diameters	Type	Quantities	Lifting Capacity	Type	Width	Diameters	Type of Materials	Lines	The Length of One Line	Volume	Quantities	Voltage	Power	Quantities	Type	Mechanism	Quantity		Consumption of Energy in the year with 30% provided	Total Installed Power	Max. Absorbing Power
	(m.m)		(sets)	(t)		(mm)	(mm)		(Number)	(m)	(m^3)	(sets)	(Ev)	(EVA)	(sets)			(sets)	(EVAr.)	(Ew/h)	(Ew)	(Ew)
26	A300 R900	SM DM	6 6	-	-	-	600 300	M M	1 1	10 10	-	-	20	400	1	RG200 RG125	-	2 3	-	179,412	-	-
27	A300 R900 A300 R150	SM DM SM DM	2 2 3 3	-	-	-	600	M	1	10	-	-	20	1600	1	RG400 RG300	-	2 2	0.945 0.947	454,082	670	587
28	A300 R900	SM DM	5 5	-	-	-	600	M	1	10	30	1	20	400	1	RG200	-	5	0.97	296,088	375	265
29	300 250 250	DM DM DM	3 3 3	-	-	-	400 300 150	M M M	2 1 1	10 10 10	30 -	1 -	20 -	630 -	1 -	RG250 RG125 TH125	- - -	2 3 2	0.94 0.94 0.94	312,000	508	-
30	350	DM	5	-	-	-	400	M	2	10	-	-	20	400	1	RG125	-	5	0.94	184,613	283	236
31	250	DM	7	-	-	-	250	M	2	10	-	-	20	250	1	RG125 RG100	-	2 1	0.94	116,980	133	-
32	350	DM	7	-	-	-	400 250	M M	1 1	10 10	-	-	20	250	1	RG125 RG100	-	2 1	0.94	69,535	112	-
33	350	DM	2	-	-	-	400	M	1	10	-	-	20	250	1	RG125	-	2	0.94	88,165	110	-
34	300 250	DM DM	2 3	-	-	-	600 250	M M	1 1	10 10	-	-	-	-	-	RG400 RG200 RG125	-	2 2 1	0.93 0.94 0.94	389,440	-	-
35	250	DM	4	-	-	-	400 250	M M	2 1	10 10	-	-	20	250	1	RG125	-	4	0.94	147,270	230	175
36	300 250	DM DM	2 3	-	-	-	400 600	M M	1 1	10 10	30	1	20	630	1	RG400 RG125	-	2 3	0.94 0.945	267,985	429	356
37	300 250	DM DM	2 2	-	-	-	400 300	M M	2 1	10 10	-	-	2000.4	630	1	TCA	-	4	0.94	234,945	-	-
38	250	DM	3	-	-	-	400	M	2	10	-	-	20	250	1	RG125	-	7	0.94	118,658	165	91
39	250	DM	5	-	-	-	400 300	M M	1 1	10 10	30	1	20	400	1	RG125	-	5	0.94	212,106	286	-
40	300 250	DM DM	3 2	-	-	-	400	M	2	10	30	1	20	400	1	RG400 RG125	-	3 2	0.94	422,876	506	-
41	300 200	SM DM	6 6	-	-	-	400	M	2	101	30	1	-	-	-	RG200	-	6	0.94	267,762	-	-
42	200 100	SM DM	4 4	-	-	-	250	M	2	10	30	1	20	250	1	RG125	-	4	0.94	267,060	239	176
43	250	DM	5	-	-	-	400	M	2	10	30	1	200	400	1	RG125	-	5	0.94	183,734	275	-
44	300 200	SM DM	6 6	-	-	-	600	M	1	10	-	-	20	250	1	RG63	-	6	0.942	138,730	196	173
45	300 200	SM DM	2 2	-	-	-	250 200	M M	1 1	10 10	-	-	20	250	1	RG200	-	2	0.946	95,660	150	130
46	250	DM	3	-	-	-	250	M	2	10	-	-	2000.4	250	1	TCA	-	3	0.94	57,170	185	-
47	250	DM	5	-	-	-	300 350 200	M M M	1 1 1	10 10 10	30	1	20	250	1	RG125	-	4	0.94	116,346	220	-
48	250	DM	5	-	-	-	400	M	2	10	-	-	2000.4	400	1	TCA	-	5	0.94	87,911	275	-
49	300 250	DM DM	2 2	-	-	-	400 300 250	M M M	1 1 1	10 10 10	-	-	20	630	1	RG250 RG125	-	2 2	0.945 0.942	202,775	370	345
50	250	DM	5	-	-	-	400	M	2	10	-	-	20	400	1	RG125	-	5	0.942	218,926	281	277

Source : ISPIT SA

Table 4.2.2-A2 Design Data on Pumping Stations (5 of 6)

No.	Name of Stations	Year of Starting Work	Location - Sewer - Km	Type of Station (from Construction Point of View)	Design Conditions										Main Equipments									Auxiliary Equipment						
					Discharge	Volume of Pumping Water in the Year with 80% Provided	Service Area	Floor Elevation	Suction Levels			Outlet Levels			Total Heads	Pump				Motor			Total HP	Quantities	Pump			Motor		Quantities
									Max.	Design	Min.	Max.	Design	Min.		Type	Rotation	Max. Shaft Power	Pump HP at Mark Head	Type	Power	Voltage			Function	Type	Rotation	Power	Voltage	
					(Ots	(thousands m^3)	(ha)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)		(rpm)	(Kw			(Kw)	(Kv)					(rpm)	(Kw)	(Kv)	(sets)
51	SPP 28		CD11 Km 3+430	CUD+CIET	336	373	373	-	89.4	86.8	86.3	-	158	-	69	MA300×6	1450	50	76	MIB5	55	0.4	70	5	Drainage	EPST06	3000	4	0.4	1
53	SPP 35 A		CD11 Km 5+936	CUB+SBTC	330	1,075	512	-	88.8	88.3	87.8	-	148	-	58	HC125-100-380	3000	46	73	MIB3	56	0.4	67	7	Compressor Drainage	EC1 EPST06	1000 3000	11 4	0.4 0.4	1 1
55	SPP 36		CM Sivet-Baragua Km 20+936	ALB+CIET	448	1,308	656 (830)	-	72.2	72.7	68.7	-	130	-	63	RDS300-150	3000	74	74	MIB3	90	0.4	88	6	Compressor Vaccum	EC1 MZL60	1000 1450	11 5.5	0.4 0.4	1 2
56	SPP 37 ---		CM Sivet-Baragua Km 20+430	CUD+CIET	368	1,300	699	-	73.2	72.4	68	-	164	-	24	MVU253×4 MA3300×8	1480 1480	180 95	70 75	MIB5 MIB3	300 75	0.4	71	5 3	Vaccum Drainage	MZL60 EPST06	1480 3000	5.5 4	0.4 0.4	2 1
58	SPP 39	-	CD11	CUD+CIET	880	3085	1256	99.50	-	-	-	-	-	-	56	MV253×4 MA300×7	1450 1460	145 80	70 75	MIB MIB	300 75	0.4 0.4	70	5 2	Compressor Drainage	EC1 EPST	1000 3000	11 4	0.4 0.4	1 1
59	SPP 39A	-	CM Sivet Baragua	ALB+CIET	448	1,550	647	-	73.3	72.4	68.8	-	-	-	59	RDS300-150	3000	73	73	MIB3	90	0.4	87	6	-	-	-	-	-	-	-
57	SPP 38		CD8A	CUD+CIET	307	1,077	600	-	108.2	108.8	108.3	-	163	-	57	MV253×2 MA300×8	1450 1450	100 43	77 74	MIB5 MIB2	132 55	0.4	69	2 3	Compressor Drainage	EC1 EPST06	1000 3000	11 4	0.4 0.4	1 1
58	SPP 30		CD8A	CUD+CIET	700	1,972	1000 (939)	-	108.1	107.2	106.8	-	184	-	79	MV253×3 MA300×7	1450 1450	150 85	77 75	MIB3 MIB3	300 75	0.4	72	4 3	Drainage	EPST06	3000	4	0.4	1
50	SPP 31		CD10	CUD+CIET	369	1,3404	600	-	131.4	130.7	130.1	-	206	-	86	MV253×4 MA300×8	1450 1450	170 63	75 75	MIB3 MIB3	300 75	0.4	70	3 3	Drainage	EPST06	3000	4	0.4	1

Source : ISPTF SA

Table 4.2.2-A2 Design Data on Pumping Stations (6 of 6)

	Valves			Overhead Crane			Pipe				Pressure Tank		Transformer			Switch Gear Contactor			COSφ Condenser	Energy Consumption Characteristics		
	Diameters	Type	Quantities	Lifting Capacity	Type	Width	Diameters	Type of Materials	Lines	The Length of One Line	Volume	Quantities	Voltage	Power	Quantities	Type	Mechanism	Quantity		Consumption of Energy in the year with 80% provided	Total Installed Power	Max. Absorbing Power
	(mm)		(sets)	(t)		(mm)	(mm)		(Number)	(m)	(m^3)	(sets)	(Kv)	(KVA)	(sets)			(sets)	(KVAr)	(Kwh)	(Kw)	(Kw)
S1	350	DM	5	-	-	-	400	M	2	10	-	-	30	400	1	HG125	-	5	0.94	153,892	270	270
S2	350	SM	7	3	CR	4000	350	M	2	10	30	1	30	400	1	HG125	-	7	0.94	258,008	385	225
	300	DM	7				250	M	1	10												
	400	DM	2				300	M	1	10												
S3	300	DM	6	-	-	-	600	M	1	10	30	1	30	630	1	HG200	-	6	0.94	338,707	535	508
	200	DM	6				300	M	1	10												
							250	M	1	10												
S4	800	DE	1	-	-	-	500	M	1	10	-	-	30	1000	1	HG400	-	2	0.943	454,376	275	498
	300	DM	2				350	M	2	10						HG300		2	0.945			
	~850	DM	2																			
S5	300	DM	5	-	-	-	800	M	2	10	30	1	30	1000	1	HG400	-	5	0.94	882,338	1186	-
	250	DM	3													HG300		2	0.94			
S6	300	SM	6	-	-	-	600	M	2	10	-	-	-	-	-	HG300	-	6	0.948	442,084	-	-
	300	DM	6																			
S7	300	DM	2	-	-	-	400	M	2	10	30	1	30	630	1	HG400	-	2	0.943	387,419	448	370
	250	DM	3													HG125		3	0.94			
S8	300	DM	4	-	-	-	800	M	1	10	-	-	30	1000	1	HG400	-	4	0.94	597,888	958	832
	250	DM	2													HG300		2	0.94			
S9	300	DM	3	-	-	-	800	M	1	10	-	-	30	1000	1	HG400	-	3	0.943	633,072	833	757
	250	DM	3													HG200		3	0.945			

Source : ISPIF SA

Table 4.2.3 - A1 Progress of Construction of SRP/SPP

PUMPING STATIONS

Sr. No.	Station Name	Progress of Construction				Year Executed	Remarks
		Earthworks	Structures /Cont.House	Intakes	Pump/Mec./ Elec.works		
1	SRP.I	100%	100%	90%	90%	1989	totally 95% completed
2	SRP.IA	-	-	-	-	-	
3	SRP.II	-	-	-	-	-	
4	SRP.III	100%	-	-	-	1989 - 1990	totally 25% completed
5	SRP.IV	100%	100%	100%	80%	1990 - 1994	totally 95% completed
6	SRP.V	100%	100%	100%	90%	1989 - 1994	totally 98% completed
7	SRP.VI	-	-	-	-	-	-
8	SRP.VII	100%	100%	90%	70%	1990 - 1992	totally 90% completed
9	SRP.VIII	-	-	-	-	-	
10	SRP.IX	-	-	-	-	-	
11	SPP.1	-	-	-	-	-	
12	SPP.2	-	-	-	-	-	
13	SPP.3-1	-	-	-	-	-	
14	SPP.3-2	-	-	-	-	-	
15	SPP.3A-1	-	-	-	-	-	
16	SPP.3A-2	-	-	-	-	-	
17	SPP.3A-3	-	-	-	-	-	
18	SPP.4	-	-	-	-	-	
19	SPP.4A	-	-	-	-	-	
20	SPP.5		-	-	-	-	
21	SPP.6	-	-	-	*	-	5 pumps purchased
22	SPP.7	100%	-	--	100%	1990 - 1992	totally 50% completed
23	SPP.8	-	-	-	-	-	
24	SPP.8A	-	-	-	-	-	
25	SPP.9	-	-	-	-	-	
26	SPP.9A	100%	100%	100%	100%	1989 - 1990	completed
27	SPP.10	100%	100%	100%	100%	1990 - 1993	- do -
28	SPP.11	100%	100%	100%	100%	1990 - 1993	- do -
29	SPP.12	-	-	-	-	-	
30	SPP.13	-	-	-	-	-	
31	SPP.14	90%	70%	70%	90%	1989 - 1993	totally 80% completed
32	SPP.14A-1	-	-	-	-	-	
33	SPP.14A-2	90%	70%	70%	90%	1989 - 1993	totally 80% completed
34	SPP.14A-3	-	-	-	-	-	
35	SPP.15	-	-	-	-	-	
36	SPP.15A	100%	100%	90%	100%	1989 - 1993	totally 98% completed
37	SPP.16	-	-	-	-	-	
38	SPP.17	-	-	-	-	-	
39	SPP.17A	-	-	-	*	-	3 pumps purchased
40	SPP.18-1	-	-	-	-	-	
41	SPP.18-2	-	-	-	-	-	
42	SPP.18A	-	-	-	-	-	
43	SPP.19	50%	100%	-	90%	1989	totally 60% completed
44	SPP.20	-	-	-	-	-	
45	SPP.20A	-	-	-	-	-	
46	SPP.21	-	-	-	-	-	
47	SPP.22	-	-	-	*	-	2 pumps purchased
48	SPP.22A	-	-	-	-	-	
49	SPP.23	-	-	-	-	-	
50	SPP.24	-	-	-	-	-	
51	SPP.25	100%	100%	100%	100%	1989 - 1993	completed
52	SPP.25A	-	-	-	-	-	
53	SPP.26	-	-	-	-	-	
54	SPP.27	-	-	-	-	-	
55	SPP.28	100%	100%	100%	100%	1989 - 1993	completed
56	SPP.28A	-	-	-	-	-	
57	SPP.29	-	-	-	-	-	
58	SPP.30	-	-	-	-	-	
59	SPP.31	-	-	-	-	-	

Table 4.2.3 - A2 Progress of Construction of CD

DISTRIBUTION CANAL IN THE FIELD

Sr. No.	Name of Canal	Design Canal Length (km)	Progress of Construction				Year Executed	Remarks
			Earthworks (km)	Concrete Linings (km)	Hydraulic Structures (Unit)	Estimeted Progress (%)		
1	CD.1	5.125	-	-	-	-	-	
2	CD.2	7.105	5.200	4.000	1	60	1989	Under Construction
3	CD.3	2.260	-	-	-	-	-	
4	CD.4	7.200	7.200	3.450	-	50	1989	Under Construction
5	CD.5	4.070	4.070	1.000	-	30	1989	Under Construction
6	CD.6	4.745	2.000	-	-	25	1989	Under Construction
7	CD.6A	1.920	-	-	-	-	-	
8	CD.7	12.200	10.200	9.800	4	90	1989 - 1994	Under Construction
9	CD.8	3.010	3.010	-	-	25	1990	Under Construction
10	CD.8A	12.550	5.300	2.000	1	20	1990	Under Construction
11	CD.9	3.450	-	-	-	-	-	
12	CD.10	5.060	-	-	-	-	-	
13	CD.11	6.180	6.180	6.180	2	100	1988 - 1989	Completed
Total		74.865	43.160 (57.7%)	26.430 (35.3%)	8	40		

Table 4.2.3 - A3 Progress of Construction of CP and Antenna

DISTRIBUTION PIPE IN THE FIELD

Sr. No.	Irrigation Sector	Design Pipe Length (m)	Progress of Construction				Year Executed	Remarks
			Earthworks (m)	Distributin Pipe (m)	Hydrant (Unit)	Test Operation		
1	Sector.1	14,126	-	-	-	-	-	
2	Sector.2	17,099	-	-	-	-	-	
3	Sector.3	22,721	-	-	-	-	-	
4	Sector.3A	16,465	-	-	-	-	-	
5	Sector.4	7,576	1,980	1,980	27	not yet	1989 - 1990	26% completed
6	Sector.4A	9,645	930	930	13	not yet	1989 - 1990	26% completed
7	Sector.5	15,282	-	-	-	-	-	
8	Sector.6	7,647	-	-	-	-	-	
9	Sector.7	6,418	-	-	-	-	-	
10	Sector.8	6,559	-	-	-	-	-	
11	Sector.8A	4,420	-	-	-	-	-	
12	Sector.9	12,328	-	-	-	-	-	
13	Sector.9A	9,124	9,124	9,124	103	not yet	1989 - 1990	ready to test
14	Sector.10	12,502	10,860	10,860	178	completed	1993	ready to operate
15	Sector.11	7,683	7,673	7,673	89	completed	1993	ready to operate
16	Sector.12	16,486	-	-	-	-	-	
17	Sector.13	9,761	-	-	-	-	-	
	Sector.14-1							
18	Sector.14-2	12,404	14,114	14,114	153	not yet	1990 - 1994	ready to test
	Sector.14-3							
19	Sector.14A	11,772	-	-	-	-	-	
20	Sector.15	5,920	-	-	-	-	-	
21	Sector.15A	11,601	11,601	11,601	135	not yet	1989 - 1994	ready to test
22	Sector.16	14,925	-	-	-	-	-	
23	Sector.17	5,006	4,877	4,877	57	not yet	1989 - 1994	97% completed
24	Sector.17A	7,579	7,579	7,579	99	not yet	1989 - 1994	ready to test
25	Sector.18	19,214	-	-	-	-	-	
26	Sector.18A	12,668	4,392	-	-	-	1989	10% completed
27	Sector.19	8,076	6,400	6,400	97	no yet	1989	99% completed
28	Sector.20	2,450	-	-	-	-	-	
29	Sector.20A	2,660	-	-	-	-	-	
30	Sector.21	4,112	-	-	-	-	-	
31	Sector.22	9,296	-	-	-	-	-	
32	Sector.22A	7,244	-	-	-	-	-	
33	Sector.23	8,323	-	-	-	-	-	
34	Sector.24	5,091	3,794	3,794	53	not yet	-	75% completed
35	Sector.25	4,272						
36	Sector.25A	8,989	25,196	25,196	201	completed	1989 - 1993	ready to operate
37	Sector.26	14,838	1,764	1,764	59	not yet	1989	34% completed
38	Sector.27	16,771	-	-	-	-	-	
38	Sector.28	20,046	-	-	-	-	-	
40	Sector.28a	11,603	-	-	-	-	-	
41	Sector.29	15,622	-	-	-	-	-	
42	Sector.30	17,342	-	-	-	-	-	
43	sector.31	29,988	-	-	-	-	-	
Total		484,645	110,284 (22.76%)	110,284 (22.76%)	1,264			

Table 4.3.2 - A1 Present Conditions of Cultivated Area, Yield and Production of Crops in the Project Area.

Crop	Area cultivated*		Yield **	Production
	(ha)	%	(kg/ha)	(ton)
Wheat	2,937	15.8	2,266	6,656
Barley	781	4.2	(2416)	1,886
Maize	13,087	70.4	2,661	34,825
Bean seeds	19	0.1	(1391)	26
Sunflower	632	3.4	1,599	1,011
Sugar beet	112	0.6	17,136	1,911
Potato	242	1.3	12,772	3,087
Vegetables	762	4.1	16,682	12,715
- Cabbage	(93)	(0.5)	(26,700)	(2,482)
- Onion	(130)	(0.7)	(19,900)	(2,590)
- Tomato	(149)	(0.8)	(15,400)	(2,290)
- Others	(390)	(2.1)	(13,713)	(5,353)
Annual pasture	19	0.1	13,520	257
Sub-total	18,590	100.0	-	62,374
Perennial pasture	500	-	23,753	11,877
Vineyard	4,000	-	6,530	26,120
Total	23,090	-	-	100,371

Notes : * Area cultivated in 1992

** Average of 8 years from 1986 to '93 except figures in parenthesis, where vegetables were used those of in 1992 and other crops were used the average in 1985,'90 and '92.

Table 4.3.2-A2 Incremental Yield by Irrigation

(Unit : %)

Crop	Estimation method					Estimated yield increase
	Maximum yield	ICITID* Experiments	ICVV** Experiments	SCPVV*** Experiments	Agro Silvica Buchuresti	
Wheat	45.9	53.8	-	-	-	50
Barley	45.9	53.8	-	-	-	50
Maize	65.6	75.8	-	-	-	70
Bean seed	-	78.3*	-	-	-	78*
Soybean	-	78.3	-	-	-	78
Bushbean	-	78.3*	-	-	-	78*
Sunflower	34.6	54.9	-	-	-	45
Sugar beet	69.1	87.6	-	-	-	78
Potato	-	67.1	-	-	-	67
Vegetables	-	-	-	-	-	-
Alfalfa	-	67.9	-	-	-	68
Maize for silage	-	125.1	-	-	-	125
Grape	36.6	-	15.1-36.0 (By variety)	15.0	42.0-43.0 (By irrigation method)	37

Notes : ICITID: Research Institution for Irrigation, Constanta

ICVV: Institut Central de Recherches Viticoles et Vinicoles, Arges

SCPVV: Statiunea de Cercetare si Productie Viti-Vinicola, Odobesti

* Soybean was applied

Table 4.3.2-A3 Effects of Irrigation to Main Crop Yields in Different Agro-climatic Zone in Romania (1970-1985)

Crop	Zone	Yield(kg/ha)		Increased rate (%)
		Non-irrigation	Irrigation	
Maize	I	4,992	10,301	206.4
	II	6,543	9,980	152.5
	III	5,872	6,996	119.1
Wheat	I	3,313	5,136	155.0
	II	2,931	4,469	152.5
	III	3,429	3,640	106.2
Sunflower	I	2,167	3,481	160.6
	II	2,139	3,189	149.1
	III	-	-	-
Sugar Beet	I	34,994	65,643	187.6
	II	-	-	-
	III	43,807	59,439	135.7
Soybean	I	1,599	3,257	203.7
	II	1,900	2,982	156.9
	III	-	-	-
Potatoes	I	19,420	38,401	197.7
	II	22,507	31,675	140.7
	III	36,768	42,387	115.3
Alfalfa	I	31,950	67,018	209.8
	II	45,858	63,598	138.7
	III	55,109	63,556	115.3
Maize for silage	I	16,200	42,737	263.8
	II	18,240	34,797	190.8
	III	34,558	43,313	125.3

Source : ICITID

Note : Agro-climatic zones are shown in Fig 4.3.2-A1

Table 4.3.2-A4 Correlation between Yield* and Precipitation in 17 towns/villages related to the Project Area**

Crop	Growing month	Precipitation in the various growing months						
		1-12	4-7	4-8	4-9	5-7	5-8	10-5
Wheat	Oct.-Jul.	0.439	-	-	-	-	-	0.638
Maize	Apr.-Oct.	0.611	0.726	0.685	0.691	-	-	-
Sunflower	Apr.-Sep.	-0.016	-0.392	-0.394	-	-0.474	-	-
Sugar Beet	Apr.-Oct.	0.436	-	-	0.323	0.556	-	-
Grape	Perennial	0.045	-	-	0.029	-	0.128	-

Notes : * Average yield in the Study Area

** Precipitation at Focsani meteorological station

n : 8 years from 1986 to '93

Table 4.3.2-A5 Estimated Yield and Area Required for Ensuring the Present Amount with the Project

Crop	Estimated yield with irrigation (kg/ha)	Present production amounts (ton)	Area required with the Project	
			Area (ha)	(%)*
Wheat	3,399	6,656	1,958	9.9
Barley	3,624	1,886	520	2.6
Maize	4,524	34,825	7,698	38.9
Bean seeds	2,476	26	11	0.1
Sunflower	2,319	1,011	436	2.2
Sugar beet	30,502	1,911	63	0.3
Potato	21,329	3,087	145	0.7
Vegetables	41,705	12,715	305	1.5
Annual pasture	22,714	257	11	0.1
Sub-total	-	62,374	11,146	56.3
Grape	8,946	26,120	2,920	114.5

Note : * Percentage to the Irrigation Project Area (arable land: 19,810 ha, vineyard: 2,550 ha)

Table 4.3.2-A6 Yield Increase by Several Irrigation Conditions in Constanta District

(Unit : kg/ha)

	Year	Exp. field of V.T.Station				District	State farm		Agric. Coop.	
		Water (m3/ha)	No irrigation (A)	Irrigation (B)	% (B)/(A)	average (C)	Irrigation (D)	% (D)/(C)	Irrigation (E)	% (E)/(C)
Wheat	1980	1,400	3,862	5,800	150	3,517	3,703	105	3,537	101
	1981	1,470	5,490	5,963	109	3,483	4,215	121	4,225	121
	1982	1,050	6,019	6,702	111	3,883	4,374	113	4,216	109
	1983	1,575	3,563	6,151	173	2,974	3,634	122	3,140	106
	1984	1,590	4,120	7,100	172	3,471	4,606	133	3,832	110
	1985	1,590	2,217	6,692	302	1,864	2,220	119	2,195	118
	1986	2,430	2,360	7,591	322	2,976	3,432	115	3,170	107
	1987	530	4,953	6,028	122	3,310	3,498	106	3,689	111
	1988	530	5,325	5,648	106	3,917	5,006	128	4,030	103
	1989	1,590	4,333	7,918	183	3,772	4,274	113	4,150	110
	Total	13,755	42,242	65,593	-	33,167	38,962	-	36,184	-
	Ave.	1,376	4,224	6,559	175	3,317	3,896	118	3,618	110
Maize	1980	2,100	3,748	13,288	355	4,514	4,291	95	3,840	85
	1981	2,100	5,094	9,978	196	4,771	3,213	67	3,687	77
	1982	2,100	6,672	12,210	183	6,314	4,892	77	5,955	94
	1983	2,625	2,789	12,345	443	6,014	4,695	78	5,088	85
	1984	2,100	6,550	13,280	203	5,543	5,948	107	5,708	103
	1985	1,850	1,890	9,962	527	4,036	2,055	51	3,823	95
	1986	2,120	2,421	11,080	458	3,453	3,633	105	3,527	102
	1987	2,120	3,489	13,171	378	3,572	3,972	111	4,392	123
	1988	2,650	2,992	10,216	341	2,681	3,069	114	2,961	110
	1989	2,120	3,305	15,274	462	2,314	2,478	107	2,560	111
	Total	21,885	38,950	120,804	-	43,212	38,246	-	41,541	-
	Ave.	2,189	3,895	12,080	354	4,321	3,825	91	4,154	99
Soybean	1980	1,575	1,328	3,388	255	1,488	924	62	698	47
	1981	1,575	1,157	2,602	225	808	1,107	137	732	91
	1982	1,575	1,655	3,302	200	965	1,411	146	895	93
	1983	2,100	1,664	3,100	186	877	1,223	139	796	91
	1984	2,120	1,290	3,060	237	1,361	1,503	110	1,235	91
	1985	2,120	270	2,078	770	531	689	130	380	72
	1986	2,470	508	3,071	605	921	1,051	114	401	44
	1987	2,120	1,099	3,556	324	867	1,017	117	828	96
	1988	2,120	340	2,502	736	620	811	131	593	96
	1989	2,120	1,896	3,283	173	560	755	135	676	121
	Total	19,895	11,207	29,942	-	8,998	10,491	-	7,234	-
	Ave.	1,990	1,121	2,994	371	900	1,049	122	723	84
Sunflower	1980	1,575	1,571	2,752	175	1,789	1,740	110	1,574	88
	1981	1,575	2,428	4,003	165	1,973	2,678	170	1,972	100
	1982	1,050	2,823	3,344	118	2,017	2,373	226	2,128	106
	1983	1,575	719	3,189	444	1,501	1,958	124	1,713	114
	1984	1,590	2,240	4,130	184	2,166	2,635	166	2,357	109
	1985	530	1,408	2,808	199	1,330	1,478	279	1,511	114
	1986	1,060	2,428	4,300	177	1,708	1,984	187	1,765	103
	1987	530	2,633	3,839	146	1,597	1,549	292	1,859	116
	1988	1,060	2,047	3,172	155	1,171	1,560	147	1,302	111
	1989	1,060	2,533	3,814	151	1,474	1,669	157	1,563	106
	Total	11,605	20,830	35,351	-	16,726	19,624	-	17,744	-
	Ave.	1,161	2,083	3,535	191	1,673	1,962	186	1,774	107

Source: I.C.I.T.I.D.

Table 4.3.2 - A7 Projected Cultivation Area and Cropping Time

Crop	Area (%)	Cropping time		
		Sowing	Transplanting	Harvesting
Wheat	12.0	E/Oct	-	M/July
Barley	3.0	L/Sep	-	M/June
Maize	45.0	L/April	-	M/Sep
Bush bean	25.0	E/May-M/June	-	E/Aug-M/Sep
(Soybean)	(25.0)	(M/May)	-	(E/Sep)
Bean seeds	(to be included in bush bean)			
Sunflower	2.5	E/May	-	M/Sep
Sugar beet	0.5	L/March	-	L/Sep
Potato	1.0	E/April	-	L/Aug-E/Sep
Maize for silo	3.0*	July	-	E.M/Oct
Cabbage				
Medium	1.5	M/Feb	E/April	July-Sep
Late	4.0*	M/June	M.L/July	Oct-Nov
Cauliflower				
Medium	1.5	(Same as Cabbage)		
Late	4.0*	(- do-)		
Cucumber				
Early	1.0	L/April	-	July-Aug
Late	4.0*	July	-	Sep-Oct
Onion	1.0	May	E.M/June	Sep-Oct
Garlic(H.quarity)	1.0	(Same as Onion)		
Green pepper	1.0	March	May	L/July-Oct
Egg plant	1.0	March	May	L/July-Oct
Carrot	1.4	March-June	-	July-Nov
Tomato	1.5	Feb-March	E.M/May	July-Oct
Annual pasture	0.1	-	-	-
Total arable land	100	-	-	
Total cropped area	115	-	-	

Notes :
1) E,M,L: 1st,2nd and 3rd 10 days of the month
2) *: Succeeding crops
3) Source: ICLF Vidra, SCPL Bacau and farmers in the Study Area
4) ( ): Alternative

Table 4.3.2-A8 Crop Rotation System Planned

Crop rotation pattern	1st year	2nd year	3rd year	4th year
I	M	M	C	B
II	M	M	W/MC	B
III	M	M	B	W/MC
IV	M	M	B	C
V	C	W/MC	W/MC	B
VI	B	W/MC	W/MC	C

Notes : M: Maize, C: Cash crop, B: Leguminous crop,
MC: Maize for silo as a succeeding crop of barley and cash crop(Vegetables) as a succeeding crop of wheat

Table 4.3.2-A9 Number of Agricultural Machinery Existing and Required in the Project Area

(Unit : units)

Type of Machinery	Number of Machinery		Area Required (ha)	Working capacity (ha/year)	Number of Machinery Required																				
					March	April			May			June			July			August			September			October	
	Existing	Required			L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M	L	E	M
Tractor(65Hp)	455	235	63,693	271	6	132	102	235	76	58	53	55	10	2	36	38	38						26	102	
Disc Plough	258	125	22,759	182	4	125	101	104	58	44	40	42	7	1	25	30	30						17	68	
Disk Harrow	69	72	22,759	316	2	7	1	72	18	14	13	13	3	1	7	8	8						5	18	
Seeder(Wheat/Barley)	78	16	2,971	186																			4	16	
" (Sunflower/Maize)	56	59	10,004	170				59	3						4										
" (Bush bean)	0	8	4,953	619					8	8	8	8													
Combine(Cereals)	160	18	2,971	165									5			18									
" (Maize)		89	9,509	107																		89			6
" (Bush Bean/Forage)	19	12	4,953	413														12	12	12	12				
" (Sunflower)		5	495	99																		5			

Notes : 1) Number of machinery required was calculated as 3.5 ha/day in operation efficiency on ploughing, 13 on harrowing, 15 on seeding and 13 on harvesting for wheat/bar 10 for maize/sunflower and 5 for sugar beet with working hours of 8-10 hours/day.

2) Existing number of machinery is the total of AGROMECs(Adjud, Panciu, Marasesti, Odobesti, Chimpineanca), ROMCEREAL and private in the IPA.

Table 4.3.3-A1 Production Plan in the Project Area

Crop	Area cultivated		Yield	Production
	(ha)	(%)	(kg/ha)	(ton)
Wheat	2,377	12.0	3,399	8,080
Barley	594	3.0	3,624	2,154
Maize	8,915	45.0	4,524	40,329
Bush bean	4,953	25.0	2,200	10,897
(Soy bean)	(4,953)	(25.0)	(3,000)	(14,858)
Bean seeds	(including bush bean)			
Sunflower	495	2.5	2,319	1,148
Sugar Beet	99	0.5	30,502	3,021
Potato	198	1.0	21,329	4,225
Maize for silage*	594	3.0	39,000	23,166
Cabbage				
Medium	297	1.5	43,000	12,777
Late*	792	4.0	65,000	51,480
Cauliflower				
Medium	297	1.5	17,000	5,052
Late*	792	4.0	23,000	18,216
Cucumber				
Early	198	1.0	50,000	9,905
Late*	792	4.0	28,000	22,176
Onion	198	1.0	22,000	4,358
Garlic(H.quarity)	198	1.0	7,000	1,387
Green pepper	198	1.0	22,000	4,358
Egg plant	198	1.0	33,000	6,537
Carrot	277	1.4	38,000	10,526
Tomato	297	1.5	60,000	17,829
Annual pasture	20	0.1	22,714	454
Sub-total	22,780	115.0	-	258,077
[Net area]	[19,810]	[100.0]	-	-
Perennial pasture	500	100.0	23,753	11,877
Grape	2,550	-	8,946	22,812
Total	25,830	-	-	292,764
[Net area]	[22,860]	-	-	-

Notes : * : Succeeding crop of Barley and Wheat

( ): Alternative

Table 4.3.3-A2 Crop Production Amounts at Present and with Project

Crop	at Present (ton)	with Project (ton)	Incremental Product (with Project) - (Present) (ton)	(%)
Wheat	6,656	8,080	1,424	21
Barley	1,886	2,154	268	14
Maize	34,825	40,329	5,502	16
Bush bean	0	10,897	10,797	-
(Soy bean)	(0)	(14,858)	(14,858)	-
Bean seeds	26	-	-26	-
Sunflower	1,011	1,148	138	14
Sugar Beet	1,911	3,021	1,108	58
Potato	3,087	4,225	1,138	37
Maize for silage	0	23,166	23,166	-
Cabbage	2,482	64,257	61,775	2,489
Cauliflower	-	23,268	23,268	-
Cucumber	-	32,081	32,081	-
Onion	2,590	4,358	1,768	68
Garlic(H.quarity)	-	1,387	1,387	-
Green pepper	-	4,358	4,358	-
Egg plant	-	6,537	6,537	-
Carrot	-	10,526	10,526	-
Tomato	2,290	17,829	15,539	679
Others	5,293	0	-5,293	-
Annual pasture	257	454	197	77
Perennial pasture	11,877	11,877	0	0
Grape	26,120	22,812	-3,308	-13
Total	100,311	292,764	192,350	192

Note : ( ): Alternative

Table 4.3.3-A3 Comparison of Crop Production at Present and with Project

Crop	at Present		with Project	
	Productn	%	Productn	%
Cereals	43,367	43.3	50,563	17.3
Leguminous	26	0.0	10,897	3.7
Industrial	2,922	2.9	4,169	1.4
Vegetables	15,742	15.7	168,827	57.7
Forege	12,045	12.0	35,497	12.1
Grape	26,120	26.1	22,812	7.8
Total	100,222	100.0	292,765	100.0

Note: Potato is included in vegetables