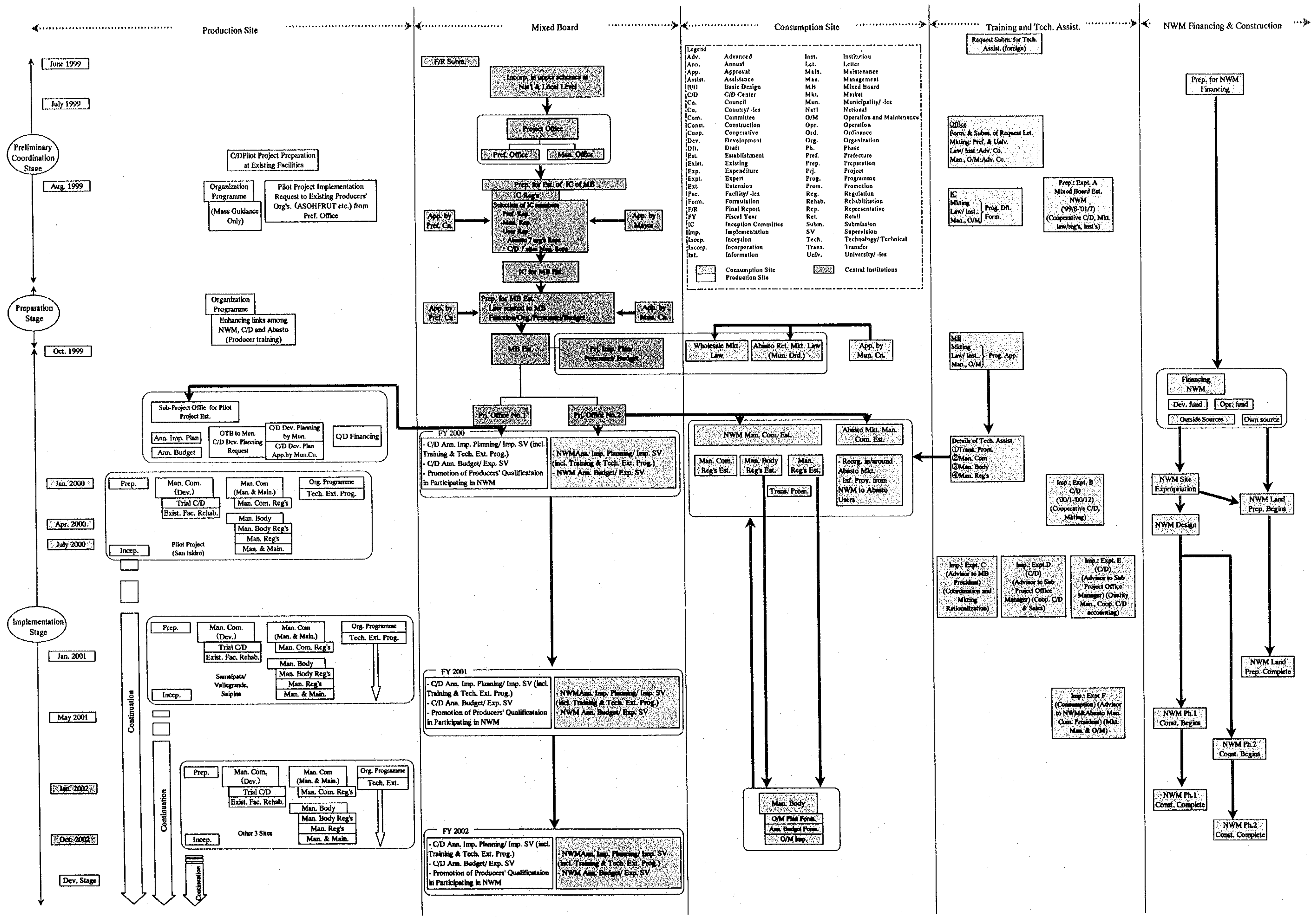


Fig. 9-2 Project Implementation Process

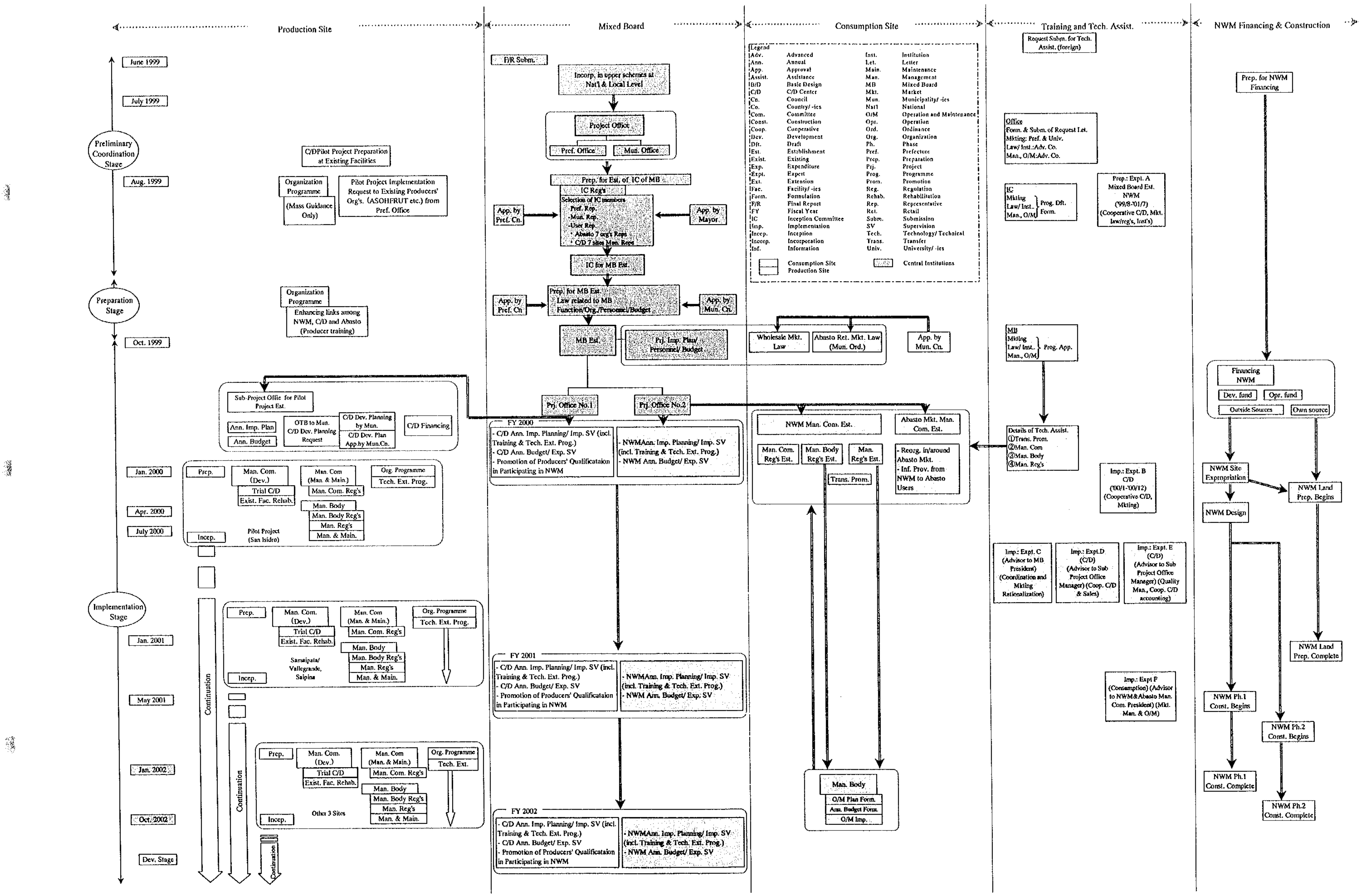


Fig. 9-2 Project Implementation Process

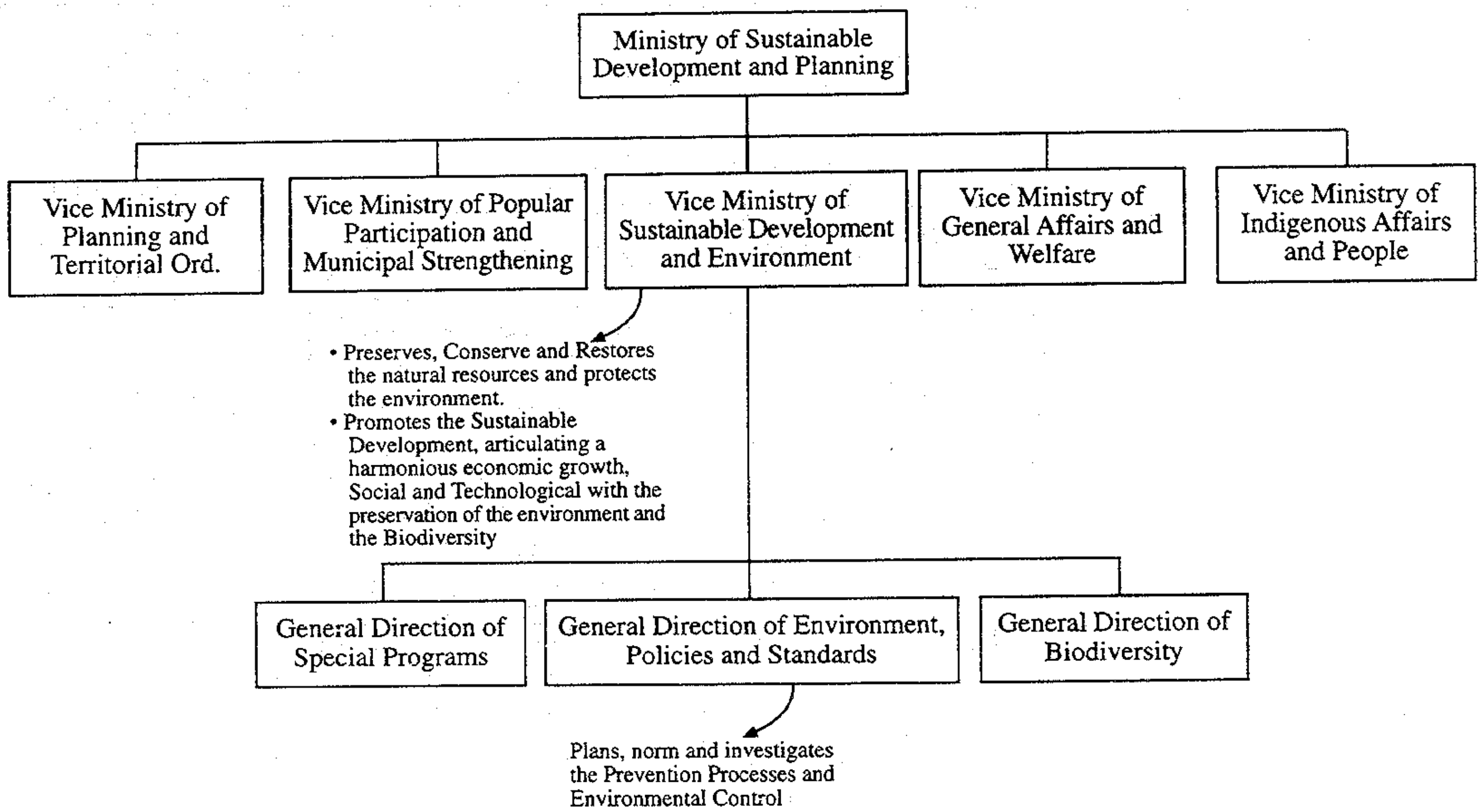
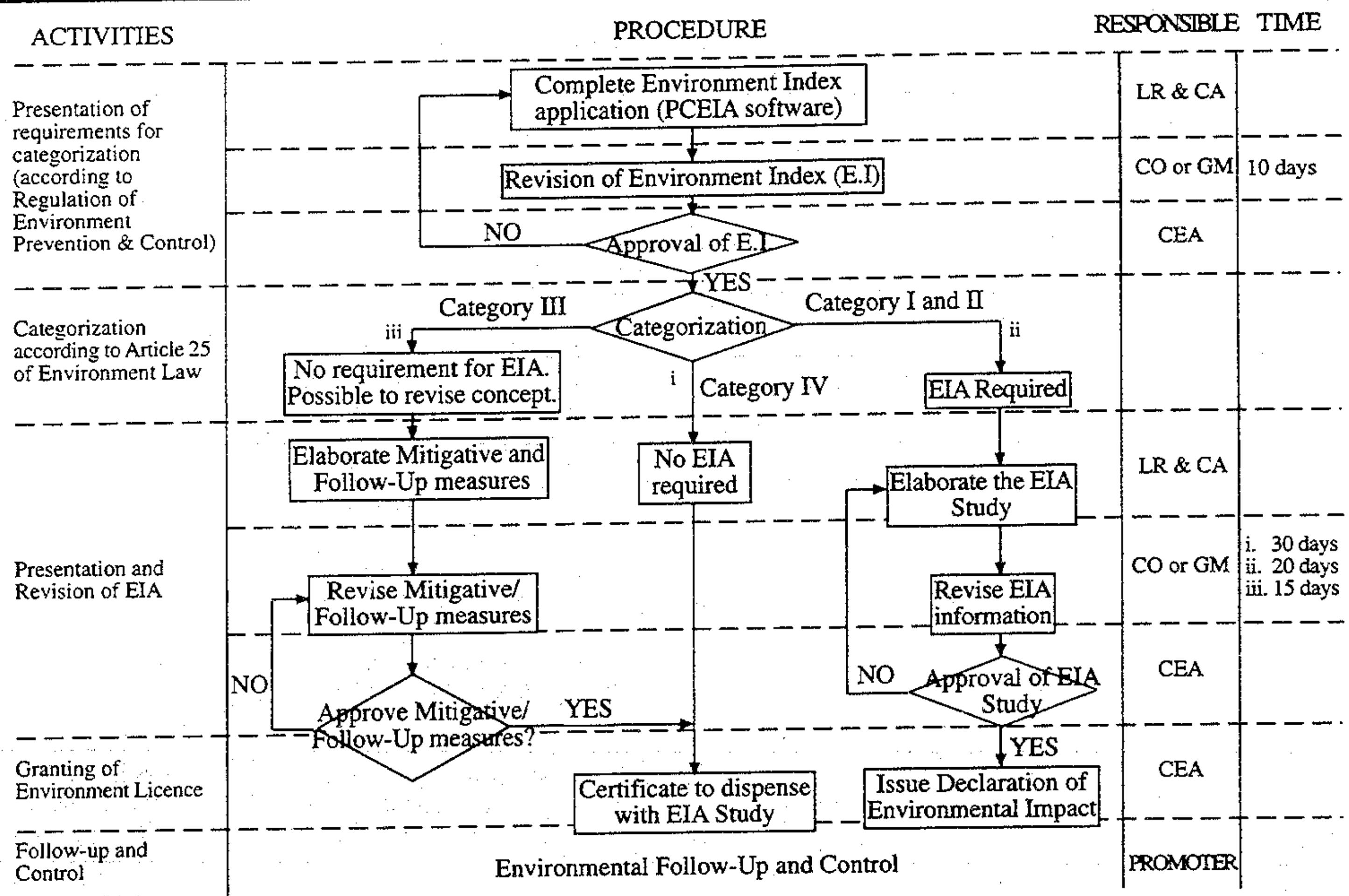


Fig. 10-1 Organization Chart of Ministry of Sustainable Development and Planning

Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz
Republic of Bolivia
Japan International Cooperation Agency



Abbreviation:
LR Legal Representative
CA Consultant
CO Concerned Organization
GM Government
CEA Competent Environment Authority.

Fig.10-2 Technical and Administrative Procedure for Environmental Impact Evaluation

Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz
Republic of Bolivia
Japan International Cooperation Agency

TABLES

Table 2-1 EXISTING IRRIGATION PROJECTS IN SANTA CRUZ DEPARTMENT

Province	Gross Irrigation Command Area(ha)	No. of Beneficiaries	Irrigated Area per Beneficiary(ha)
Florida	1,317	907	1.5
Caballero	3,362	2,414	1.4
Vallegrande	1,832	1,208	1.5
Valley Area Total	**6,511**	**4,529**	**1.4**
Other Areas	2,955	1,518	1.9
Santa Cruz Total	**9,466**	**6,047**	**1.6**

Remarks
1. Project with canal irrigation system; source: Plan General de Riego, Department Santa Cruz, CORDECRUZ, 1994
2. "Mairana, Filadelfia/Mendiola" in Florida Province include pumping irrigation area
Source: Plan General de Riego, Department Santa Cruz, CORDECRUZ, 1994 and data presented by PRICRUZ

Table 2-2 PRODUCTION AND MARKETING VOLUME OF FRUITS AND VEGETABLES,AND OUTLINE OF IRRIGATION AREA IN THE VALLEY AREAS (1998)

Province	Products				Marketing Volume by Destination(ton)				No of Beneficiaries
	Irrigation area (ha)	Vegetables (ton)	Fruits (ton)	Total (ton)	St Cruz	Cochabamba	Local	Total	
(1)Florida	1,317 (3,420)	35,900	6,700	42,600	32,810 *90%*	2,831 *8%*	570 *2%*	36,210 *100%*	907
(2)Caballero	3,362 (3,520)	38,500	400	38,900	14,451 *43%*	19,449 *57%*	0 *0%*	33,900 *100%*	2,414
(3)Vallegrande	1,832 (3,200)	29,300	6,000	35,300	27,300 *95%*	0 *0%*	1,585 *5%*	28,905 *100%*	1,208
Total	6,511 (10,140)	103,700	13,100	116,800	74,581	22,280	2,155	99,015	4,529

Remark:
1. Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz, 1998.
2. ( ) signifies the cultivated areas of fruits and vegetables (incl. irrigated and non-irrigated)

Table 2-3 AREAS PLANNED TO BE IRRIGATED IN THE VALLEY AREAS AND ITS BENEFICIARIES

	Areas to be irrigated (ha)			
	Rehabilitation	Expansion	Total	No of Beneficiaries
(1)Florida	317	1,425	1,742	740
(2)Caballero	3,132 (1755)	1,193 (590)	4,325 (2345)	1,670
(3)Vallegrande	70	279	349	124
Total	3,519	2,897	6,416	2,534

Remark:
1. Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz, 1998.
2. ( ) signifies the areas to be covered by the "Irrigation Development Project under Comarapa-Saipina-San Rafael" by KFW.

Table 2-4 ESTIMATED CURRENT CROP PRODUCTION IN VALLEY REGION BY PROVINCE (1997)

Crops	Florida Province Production (000t)	Florida Share(%)	Caballero Province Production (000t)	Caballero Share(%)	Vallegrande Province Production (000t)	Vallegrande Share(%)	Production (000t)
1. Cereals & Beans							
Maize	33.0	47	4.4	6	33.0	47	70.4
Wheat			1.0	25	3.0	75	4.0
Beans	1.5	65			0.8	35	2.3
Others	0.5	50	0.2	20	0.3	30	1.0
Sub-total	35.0	45	5.6	7	37.1	48	77.7
2. Vegetables							
Potatoes	15.0	28	16.7	31	22.0	41	53.7
Tomato	8.5	34	12.8	51	3.8	15	25.1
Lettuce	8.0	100					8.0
Choclo			1.3	100			1.3
Others	4.4	28	7.7	49	3.5	22	15.6
Sub-total	35.9	35	38.5	37	29.3	28	103.7
3. Fruits							
Peach	2.5	56			2.0	44	4.5
Plum					1.0	100	1.0
Citrus	2.5	100					2.5
Others	1.7	33	0.4	8	3.0	59	5.1
Sub-total	6.7	51	0.4	3	6.0	46	13.1
4. Others							
Tobbaco	0.8	100					0.8
Sugarcane	4.0	15	15.0	56	8.0	30	27.0
Sub-total	4.8	17	15.0	54	8.0	29	27.8
Total	82.4	-	59.5	-	80.4	-	222.3

Remarks:
1. "Others" in 1. Cereals & Beans include groundnut & others
2. "Others" in 2. Vegetables include green pepper, beans, peas, cabbage, onion, carrot etc.
3. "Others" in 3. Fruits include plum, grapee, apple, cherimoya

Source:

Florida: Plan Participativo de Desarrollo Municipal Sostenible, 1997, Municipal de Samaipata
Data presented by CIAT & ASOFRUT, Mairana
Data presented by CIAT & municipal office, Pampa Grande

Caballero: Data presented byy PRICRUZ
Estudio de Pre-factibilidad Proyekto Riego Puluquina Arriba-San Isidro-Puluquina Abajo, 1992, CORDECRUZ
Data presented by CIAT/ASOFRUT, San Isidro

Vallegrande: Plan Participativo de Desarrollo Municipal 1998 - 2002, Municipal de Vallegrande
Data prsented by CIAT, Vallegrande

Table 2-5 CURRENT ANNUAL MARKEING VOLUMES AND DESTINATION MARKETS OF FRUITS AND VEGETABALES PRODUCED IN VALLEY REGION(1997)

		Province			
Commodity	Items	Florida	Caballero	Vallegrande	Valley Region Total
Potatoes	Production(t)	15,000	16,700	22,000	53,700
	Commercialization Rate(%)	85	90	80	85
	Marketing Volume(t)	12,750	15,030	17,600	45,380
	Destination Market: Share(%)				
	St. Cruz(%)	100	50	100	83
	Cochabamba(%)	0	50	0	17
	Local(%)	0	0	0	0
	Destination Market:Volume(t)				
	St. Cruz(t)	12,750	7,515	17,600	37,865
	Cochabamba(t)	0	7,515	0	7,515
	Local(t)	0	0	0	0
Tomato	Production(t)	8,500	12,800	3,800	25,100
	Commercialization Rate(%)	85	85	85	85
	Marketing Volume(t)	7,225	10,880	3,230	21,335
	Destination Market: Share(%)				
	St. Cruz(%)	90	20	95	55
	Cochabamba(%)	10	80	0	44
	Local(%)	0	0	5	1
	Destination Market:Volume(t)				
	St. Cruz(t)	6,503	2,176	3,069	11,747
	Cochabamba(t)	723	8,704	0	9,427
	Local(t)	0	0	162	162
Other Vegetables	Production(t)	12,400	9,000	3,500	24,900
	Commercialization Rate(%)	85	85	85	85
	Marketing Volume(t)	10,540	7,650	2,975	21,165
	Destination Market: Share(%)				
	St. Cruz(%)	80	60	95	75
	Cochabamba(%)	20	40	0	24
	Local(%)	0	0	5	1
	Destination Market:Volume(t)				
	St. Cruz(t)	8,432	4,590	2,826	15,848
	Cochabamba(t)	2,108	3,060	0	5,168
	Local(t)	0	0	149	149
Fruits	Production(t)	6,700	400	6,000	13,100
	Commercialization Rate(%)	85	85	85	85
	Marketing Volume(t)	5,695	340	5,100	11,135
	Destination Market: Share(%)				
	St. Cruz(%)	90	50	75	82
	Cochabamba(%)	0	50	0	2
	Local(%)	10	0	25	17
	Destination Market:Volume(t)				
	St. Cruz(t)	5,126	170	3,825	9,121
	Cochabamba(t)	0	170	0	170
	Local(t)	570	0	1,275	1,845
Total	Production(t)	42,600	38,900	35,300	116,800
	Commercialization Rate(%)	85	87	82	85
	Marketing Volume(t)	36,210	33,900	28,905	99,015
	Destination Market: Share(%)				
	St. Cruz(%)	91	43	95	75
	Cochabamba(%)	8	57	0	23
	Local(%)	2	0	5	2
	Destination Market:Volume(t)				
	St. Cruz(t)	32,810	14,451	27,320	74,581
	Cochabamba(t)	2,831	19,449	0	22,280
	Local(t)	570	0	1,585	2,155

Source: Results of study by JICA Study Team, 1998

Table 2-6 IRRIGATION DEVELOPMENT PLANS IN SANTA CRUZ DEPARTMENT

Province	Municipality	Gross Irrigation Command Area(ha) Rehabilitation	Expansion	Total	No. of Beneficiaries (households)
Florida	Mairana	317	1,425	1,742	740
Caballero	Comarapa & Saipina	3,132	1,193	4,325	1,670
Vallegrande		70	279	349	124
Valley Region Total		**3,519**	**2,897**	**6,416**	**2,534**
Cordillera		**2,615**		**2,615**	**636**
Santa Cruz Department Total		**6,134**	**2,897**	**9,031**	**3,170**

Source: Plan General de Riego Department de Santa Cruz, 1996, Lahmeyer International-Arcotrass-SID SRL.

Table 2-7 ESTIMATED CURRENT CROPPED AREAS AND CROP PRODUCTION IN MAJOR PRODUCING AREAS (1997)

	Florida						Comarapa						Vallegrande	
	Samaipata Area		Mairana Area		Pampa Grande Area		Comarapa Area		San Isidro Area		Saipina Area		Vallegrande Area	
Crops	Cropped Area (ha)	Production (t)	Cropped Area (ha)	Production (t)	Cropped Area (ha)	Production (t)	Cropped Area (ha)	Production (t)	Cropped Area (ha)	Production (t)	Cropped Area (ha)	Production (t)	Cropped Area (ha)	Production (t)
1. Cereals & Beans														
Maize	2,900	6,380	6,200	13,640	2,500	5,500	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6,200	13,640
Wheat							n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	900	1,080
Beans	1,100	1,650	700	1,050	500	750	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
Others	50	50	100	100	100	100	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
Sub-total	4,050	8,080	7,000	14,790	3,100	6,350			0	0	0	0	7,100	14,720
2. Vegetables														
Potatoes	470	5,170	140	1,680	300	3,600	290	3,190	500	6,000	680	7,480	900	9,900
Tomato	70	1,050	110	1,650	240	4,080	100	1,700	220	3,740	430	7,310	100	1,500
Lettuce	50	1,000	110	2,200	240	4,800								
Choclo									220	1,320				
Others	30	150	100	1,000	420	2,100	210	1,050	490	4,900	340	1,700	50	500
Sub-total	620	7,370	460	6,530	1,200	14,580	600	5,940	1,430	15,960	1,450	16,490	1,050	11,900
3. Fruits														
Peach	30	300	110	1,100	50	500							120	1,200
Plum													50	500
Citrus	100	1,000	50	500	80	800								
Others	60	600	90	900			40	400					180	1,800
Sub-total	190	1,900	250	2,500	130	1,300	40	400	0	0	0	0	350	3,500
4. Others														
Tobbaco	760	1,060	400	560			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
Sugarcane					30	1,200	n.a.	n.a.	n.a.	n.a.	250	15,000	200	8,000
Others	80	3,200					n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
Sub-total	840	4,260	400	560	30	1,200			0	0	250	15,000	200	8,000
Total	5,700	21,610	8,110	24,380	4,460	23,430	640	6,340	1,430	15,960	1,700	31,490	8,700	38,120

Remarks 1: Samaipata, Mairana, Pampa Grnade, Saipina & Vallegrande: cropped area and production in the whole municipality

Remarks 2:Comarapa: cropped area and production in Comarapa municipality excluding those in San Isidro Area; San Isidro: cropped area and production in irrigated areas in San Isidro and Pulquina

Remarks 3: "Other" in 1.Cereals & beans include groundnut & others

Remarks 4: "Others" in 2. Vegetables include green pepper, beans, peas, cabbage, onion, carrot etc.

Remarks 5: "Others" in 3. Fruits include grape, apple

Remarks 6: "Others" in 4. Others include sugarcane, cassava etc.

Source:

Samaipata: Plan Participativo de Desarrollo Municipal Sostenible, 1997, Municipal de Samaipata

Pampa Grande: Data presented by CIAT & municipal office, Pampa Grande

Comarapa & Saipina: Data presented by PRICRUZ

San Isidro: Estudio de Pre-factibilidad Proyekto Riego Puluquina Arriba-San Isidro-Puluquina Abajo, 1992, CORDECRUZ; Data presented by CIAT/ASOFRUT, San Isidro

Vallegrande: Plan Participativo de Desarrollo Municipal 1998 - 2002, Municipal de Vallegrande; Data presented by CIAT, Vallegrande

Table 2-8 CURRENT ANNUAL MARKETING VOLUMES AND DESTINATION MARKETS OF FRUITS AND VEGETABLES BY MAJOR PRODUCING AREAS(1997)

Commodity		Florida			Caballero			Vallegrande
		Samaipata	Mairana	Pampa Grande	Comarapa	San Isidro	Saipina	Vallegrande
Potatoes	Production(t)	5,170	1,680	3,600	3,190	6,000	7,480	9,900
	Commercialization(%)	80	80	90	80	90	90	80
	Marketing Volume(t)	4,136	1,344	3,240	2,552	5,400	6,732	7,920
	Destination Market:Share(%)							
	St. Cruz(%)	100	100	100	60	70	30	100
	Cochabamba(%)	0	0	0	40	30	70	0
	Local(%)	0	0	0				0
	Destination Market:Volume(t)							
	St. C St. Cruz(t)	4,136	1,344	3,240	1,531	3,780	2,020	7,920
	Coct Cochabamba(t)	0	0	0	1,021	1,620	4,712	0
	Loca Local(t)	0	0	0	0	0	0	0
Tomato	Production(t)	1,050	1,650	4,080	1,700	3,740	7,310	1,500
	Commercialization(%)	85	85	85	85	85	85	85
	Marketing Volume(t)	893	1,403	3,468	1,445	3,179	6,214	1,275
	Destination Market:Share(%)							
	St. Cruz(%)	100	80	90	50	30	5	95
	Cochabamba(%)	0	20	10	50	70	95	0
	Local(%)	0	0	0	0	0	0	5
	Destination Market:Volume(t)							
	St. C St. Cruz(t)	893	1,122	3,121	723	954	311	1,211
	Coct Cochabamba(t)	0	281	347	723	2,225	5,903	0
	Loca Local(t)	0	0	0	0	0	0	64
Other Vegetables	Production(t)	1,150	3,200	6,900	1,050	6,220	1,700	500
	Commercialization(%)	85	85	85	85	85	85	85
	Marketing Volume(t)	978	2,720	5,865	893	5,287	1,445	425
	Destination Market:Share(%)							
	St. Cruz(%)	100	100	70	60	60	70	95
	Cochabamba(%)	0	0	30	40	40	30	0
	Local(%)	0	0	0	0	0	0	5
	Destination Market:Volume(t)							
	St. C St. Cruz(t)	978	2,720	4,106	536	3,172	1,012	404
	Coct Cochabamba(t)	0	0	1,760	357	2,115	434	0
	Loca Local(t)	0	0	0	0	0	0	21
Fruits	Production(t)	1,900	2,500	1,300	400			3,500
	Commercialization(%)	85	85	85	85			85
	Marketing Volume(t)	1,615	2,125	1,105	340	0	0	2,975
	Destination Market:Share(%)							
	St. Cruz(%)	90	100	60	50			75
	Cochabamba(%)	0	0	0	50			0
	Local(%)	10	0	40	0			25
	Destination Market:Volume(t)							
	St. C St. Cruz(t)	1,454	2,125	663	170			2,231
	Coct Cochabamba(t)	0	0	0	170			0
	Loca Local(t)	162	0	442	0			744
Total	Production(t)	9,270	9,030	15,880	6,340	15,960	16,490	15,400
	Commercialization(%)	82	84	86	82	87	87	82
	Marketing Volume(t)	7,621	7,592	13,678	5,230	13,866	14,391	12,595
	Destination Market:Share(%)							
	St. Cruz(%)	98	96	81	57	57	23	93
	Cochabamba(%)	0	4	15	43	43	77	0
	Local(%)	2	0	3	0	0	0	7
	Destination Market:Volume(t)							
	St. C St. Cruz(t)	7,460	7,311	11,130	2,959	7,906	3,342	11,766
	Coct Cochabamba(t)	0	281	2,106	2,270	5,960	11,049	0
	Loca Local(t)	162	0	442	0	0	0	829

Source: Results of study by JICA Study Team, 1998

Table 2-9 MAJOR AGRICULTURE FACILITIES RELATED WITH PRESENT STUDY IN MAJOR PRODUCING AREAS

Major Pproducing Areas	Facility	Constructed	Possesion	Capacity	Operation & Management	Use/Remarks
Samaipata Area	Collection facility	1985	ASOFRUT		ASOFRUT	Rented out for storage of food stuff under PAIS program
	Fruit processing facility (only building)	1994	ASOFRUT		ASOFRUT	Not used: trial production of fruit jam & marmalade in 1996 under the guidance of JOCV
	Local open market	-	Municipal government	-	Municipal government	Opened aily
Mairana Area	Corn flour mill	1978	Private	400 t/day	Private	Commercial operation
	Tobbaco collection center	-	Private	-	Private	Operation from April to July
	Municipal market	1978	Municipal government	2900m2	Municipal government	Open mainly on Sunday; oresently under renovation
Pampa Grande Area	Wheat seed processing facility	-	Private	-	Private	Commercial operation
	Local open market	-	Municipal government	-	Municipal government	Daily; operation started in August 1998
	Municipal market	1999	Municipal government	130 plots	Municipal government	2 story building in Los Negros; construction suspended because of objection of residents of Los Negros
Comarapa Area	Municipal market	-	Municipal government	-	Municipal government	Daiily
	Warehouse	-	EMCA	-	EMCA	Storage of farm inputs
San Isidro Area	Collection facility	1983	PETHOSAN		San Isidro sub-municality	Not used; originally constructed for tomato processing use of facility entrusted to San Isidro in 1993 for 5 years
	Municipal market	-	Municipal government	-	Municipal government	Daily
	Local open market	-	Municipal government	-	Municipal government	Daily; operation started in August 1998
Saipina Area	Municipal market	-	Municipal government	-	Municipal government	Daily
	Brown sugar processing facility		Individual		Individual	About 30 in total
Vallegrande Area	Farmers market(retail market)	1993	Municipal government	800m2	Municipal government	Saturday & Sunday
	Local open market	-	Municipal government	-	Municipal government	Daily; 2 markets in municipal

Source: Information provided by representatives of producers, agriculture institutions & municipal offices(JICA Study findings, 1998)

Table 2-10 POPULATION BY PROVINCE IN SANTA CRUZ DEPT.

	1995	1996	1997
1. Andre Ibanez	927,197	967,590	1,009,379
1) Santa Cruz City	838,464	874,991	912,781
		(+4.32%)	(+4.32%)
2) Others	88,733	92,599	96,598
2. Valley area	66,416	65,924	65,414
1) Vallegrande	27,098	26,899	26,692
2) Florida	22,769	22,512	22,250
3) Caballero	16,549	16,513	16,472
3. Others	558,941	568,002	577,158
Santa Cruz Dept.	1,552,554	1,601,516	1,651,951
		(+3.15%)	(+3.15%)

Source: Anuario Estadistico 1997, Instituto Nacional de Estadistica (INE)

Table 2-11 SUPPLY AND DEMAND OF FRUIT AND VEGETABLE IN SANTA CRUZ DEPT. (1994)

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	94	0	94	22	20	42	+52
Low land	292	6	298	183	77	260	+38
SC City	0	143	143	233	0	233	-90
Total	386	149	535	438	97	535	0

Source: JICA Study Team, 1994

Table 2-12 SUPPLY AND DEMAND OF ROOT CROP IN SANTA CRUZ DEPT. (1994)

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	25	0	25	14	4	18	+7
Low land	162	3	165	87	68	155	+10
SC City	0	35	35	52	0	52	-17
Total	187	38	225	153	72	225	0

Source: JICA Study Team, 1994

Table 2-13 SUPPLY AND DEMAND OF VEGETABLE IN SANTA CRUZ DEPT. (1994)

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	61	0	61	5	15	20	+41
Low land	23	2	25	22	0	22	+3
SC City	0	39	39	83	0	83	-44
Total	84	41	125	110	15	125	0

Source: JICA Study Team, 1994

Table 2-14 SUPPLY AND DEMAND OF FRUIT IN SANTA CRUZ DEPT. (1994)

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	8	0	8	3	1	4	+4
Low land	107	1	108	74	9	83	+25
SC City	0	69	69	98	0	98	-29
Total	115	70	185	175	10	185	0

Source: JICA Study Team, 1994

Table 2-15 SUPPLY AND DEMAND OF FRUIT AND VEGETABLE IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	117	0	117	21	22	43	+74
Low land	362	0	362	212	93	305	+57
External	-	13	13	-	-	-	+13
SC City	0	143	143	287	0	287	-144
Total	479	156	635	520	125	635	0

Source: JICA Study Team, 1998

Table 2-16 SUPPLY AND DEMAND OF ROOT CROP IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	54	0	54	13	8	21	+33
Low land	192	0	192	101	76	177	+15
External	-	12	12	-	-	-	+12
SC City	0	17	17	64	0	64	-47
Total	250	29	275	116	84	267	+13

Source: JICA Study Team, 1998

Table 2-17 SUPPLY AND DEMAND OF VEGETABLE IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	50	0	50	5	14	19	+31
Low land	21	0	21	25	0	25	-4
External	-	0	0	-	0	0	0
SC City	0	65	65	102	0	102	-37
Total	71	65	136	132	14	146	-10

Source: JICA Study Team, 1998

Table 2-18 SUPPLY AND DEMAND OF FRUIT IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Supply			Demand			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	13	0	13	3	0	3	+10
Low land	149	0	149	86	17	103	+46
External	-	1	1	-	-	-	+1
SC City	0	61	61	121	0	121	-60
Total	162	62	224	210	17	227	-3

Source: JICA Study Team, 1998

Table 2-19 ORIGIN/DESTINATION OF FRUIT AND VEGETABLE IN SANTA CRUZ DEPT. (1994)

Unit: 1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	22	0	52	74	20	0	94
Low land	0	177	38	215	77	0	292
SC City	0	5	0	5	0	0	5
Sub-total	22	182	90	294	97	0	391
Outside SC	0	1	143	144	-	0	1440
Total	22	183	233	438	97	0	535

Source: JICA Study Team, 1994

Table 2-20 ORIGIN/DESTINATION OF ROOT CROP IN SANTA CRUZ DEPT. (1994)

Unit:1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	14	0	7	21	4	0	25
Low land	0	84	10	94	68	0	162
SC City	0	2	0	2	0	0	2
Sub-total	14	86	17	117	72	0	189
Outside SC	0	1	35	36	-	0	36
Total	14	87	52	153	72	0	225

Source: JICA Study Team, 1994

Table 2-21 ORIGIN/DESTINATION OF VEGETABLE IN SANTA CRUZ DEPT. (1994)

Unit:1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	5	0	41	46	15	0	61
Low land	0	20	3	23	0	0	23
SC City	0	2	0	2	0	0	2
Sub-total	5	22	44	71	15	0	86
Outside SC	0	0	39	39	-	0	39
Total	5	22	83	110	15	0	125

Source: JICA Study Team, 1994

Table 2-22 ORIGIN/DESTINATION OF FRUIT IN SANTA CRUZ DEPT. (1994)

Unit: 1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	3	0	4	7	1	0	8
Low land	0	73	25	98	9	0	107
SC City	0	1	0	1	0	0	1
Sub-total	3	74	29	106	10	0	116
Outside SC	0	0	69	69	-	0	69
Total	3	74	98	175	10	0	185

Source: JICA Study Team, 1994

Table 2-23 ORIGIN/DESTINATION OF FRUIT AND VEGETABLE IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	21	0	72	93	24	0	117
Lowland	0	212	59	271	91	0	362
SC City	0	0	0	0	0	0	0
Sub-total	21	212	131	364	115	0	479
Outside SC	0	0	143	143	-	0	143
Import	0	0	13	13	0	-	13
Total	21	212	287	520	115	0	635

Source: JICA Study Team, 1998

Table 2-24 ORIGIN/DESTINATION OF ROOT CROP IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	13	0	17	30	5	0	35
Low land	0	101	10	111	81	0	192
SC City	0	0	0	0	0	0	0
Sub-total	13	101	27	141	86	0	227
Outside SC	0	0	26	26	-	0	26
Import	0	0	12	12	0	-	12
Total	13	101	65	179	86	0	265

Source: JICA Study Team, 1998

Table 2-25 ORIGIN/DESTINATION OF VEGETABLE IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	5	0	51	56	13	0	69
Low land	0	25	8	33	5	0	38
SC City	0	0	0	0	0	0	0
Sub-total	5	25	59	89	18	0	107
Outside SC	0	0	43	43	-	0	43
Import	0	0	0	0	0	-	0
Total	5	25	102	132	18	0	150

Source: JICA Study Team, 1998

Table 2-26 ORIGIN/DESTINATION OF FRUIT IN SANTA CRUZ DEPT. (1998)

Unit: 1,000 tons

	Valley	Low land	SC City	Sub-total	Outside SC	Export	Total
Valley	3	0	4	7	6	0	13
Low land	0	86	41	127	5	0	132
SC City	0	0	0	0	0	0	0
Sub-total	3	86	45	134	11	0	145
Outside SC	0	0	74	74	-	0	74
Import	0	0	1	1	0	-	1
Total	3	86	120	209	11	1	220

Source: JICA Study Team, 1998

Table 2-27 SEASONAL VARIATION OF COMMODITY-WISE INFLOW VOLUME TO ABASTO MARKET

Unit: tons/week

	1st Phase	Study	August	1998		2nd Phase	Study	November	1998	
Product	Valley	Lowland	Outside SC	Import	**Total**	Valley	Low land	Outside SC	Import	**Total**
Potato	209	155	78	240	**682** **(21.1%)**	197	-	63	791	**1,051** **(39.1%)**
Tomato	114	67	-	-	**181** **(5.6%)**	188	-	2	-	**190** **(7.0%)**
Pimenton	3	3	-	-	**6** **(0.2%)**	15	-	-	-	**15** **(0.5%)**
Onion	16	23	604	-	**643** **(19.9%)**	-	-	54	-	**54** **(2.0%)**
Lettuce	222	-	-	-	**222** **(6.9%)**	36	-	-	-	**36** **(1.3%)**
Other vegetables	190	138	108	-	**436** **(13.5%)**	107	20	149	-	**276** **(10.3%)**
Banana (Platano)	-	143	623	-	**766** **(23.7%)**	42	238	620	-	**900** **(33.4%)**
Pineapple	-	7	-	-	**7** **(0.2%)**	-	13	68	-	**81** **(3.0%)**
Watermelon	-	25	70	-	**95** **(2.9%)**	34	2	-	-	**36** **(1.3%)**
Other fruits	20	88	81	4	**193** **(6.0%)**	-	40	6	6	**52** **(2.0%)**
Total	774 (24.0%)	649 (20.1%)	1,564 (48.4%)	244 (7.6%)	**3,231** **(100%)**	619 (22.9%)	313 (11.6%)	962 (35.7%)	797 (29.6%)	**2,691** **(100%)**

Remark: The data of 2nd phase study is multiplied 3.5 for two days' inflow volume. The data of 1st phase study is for successive 7 days' inflow volume.
Source: JICA Study Team, November and August 1998

Table 2-28 RATIO OF TRUCKS ENTERING ABASTO MARKET BY TRUCK CAPACITIES

Unit: %

	Less than 5 tons	5 to 10 tons	10 to 20 tons	20 to 30 tons	Total
1st phase study	49.4	18.9	15.1	16.6	100
2nd phase study	50.0	19.4	16.7	13.9	100

Source: JICA Study Team, August and November 1998

Table 2-29 INCOMING TRUCK TO ABASTO MARKET BY ORIGIN AND CAPACITY

	Less than 5 tons	5 to 10 tons	10 to 20 tons	20 to 30 tons	Total
Valley	22	10	1	2	35 (32.4%)
Low land	5	3	5	2	15 (13.9%)
Outside SC	26	5	8	3	42 (38.9%)
Import	1	3	4	8	16 (14.8%)
Total	54(50.0%)	21(19.4%)	18(16.7%)	15(13.9%)	108 (100%)

Source: JICA Study Team, November 1998

Table 2-30 DISTRIBUTION OF INCOMING PRODUCTS IN ABASTO MARKET

Unit: tons/week

Year	Wholesalers in Abasto	Retailers in Abasto	Retailers in other market	Sub-total	Public consumers	Supermarket	Institution	Intermediary outside SC	Total
1994	1,977	199	117	2,313		358			2,651
	(74.6%)	(7.5%)	(4.4%)	(87.3%)		(14.0%)			(100%)
1998	2,119	585	294	2,998	211	5	2	15	3,231
	(65.5%)	(18.1%)	(9.1%)	(92.8%)	(6.5%)	(0.2%)	(0.1%)	(0.5%)	(100%)

Source: JICA Study Team. June 1994 and August 1998

Table 2-31 DISTRIBUTION OF PRODUCT FROM WHOLESALERS IN ABASTO MARKET

Unit: tons/week

Year	Retailers in Abasto	Retailers in other market	Sub-total	Public consumers	Supermarket	Institutions	Outside SC	Total
1994	312	1,349	1,661	226	20		90	1,997
	(15.6%)	(67.6%)	(83.2%)	(11.3%)	(1.0%)		(4.5%)	(100%)
1998	1,127	451	1,578	449	32	43	17	2,119
	(53.2%)	(21.3%)	(74.5%)	(21.2%)	(1.5%)	(2.0%)	(0.8%)	(100%)

Source: JICA Study Team, June 1994 and August 1998

Table 2-32 **WHOLESALE PRICE FLUCTUATION OF FRUITS AND VEGETABLES IN SANTA CRUZ (JAN 1996 - DEC 1997)**

Commodity	Unit	Max. price (Bs.)	Min. price (Bs.)	Max./Min.
Potato (Hollandesa)	@	23.53	8.67	2.71
Cassava	@	14.00	5.44	2.57
Lettuce	Basket ,3@	78.33	16.70	**4.69**
Pimenton	Bag, 20x12	74.77	21.76	3.44
Tomato (Pera)	Box, 18 kg	64.44	7.63	**8.45**
Tomato (Manz)	Box, 20 kg	71.39	11.95	**5.97**
Peas	@	33.09	9.31	3.55
Cabbage	Bag, 50-60	70.00	27.73	2.52
Onion	15@	443.86	80.06	**5.54**
Mandarin	100 pieces	57.50	12.00	**4.79**
Pineapple (Large)	100 pieces	280.00	200.00	1.4
Watermelon	100 pieces	731.54	458.82	1.59
Peach (Samaipata)	@	56.67	45.00	1.25
Apple (Argentine)	Box, 198 pieces	160.00	92.50	1.73
Apple (Chile)	Box, 200 pieces	136.00	83.81	1.62

Source: Numeros de Nuestra Tierra, 1998, CAO; Santa Cruz – Bolivia
Remarks: @ means arroba. (11.5 kg)

Table 2-33 **NUMBER OF TRUCKS ENTERING TO ABASTO MARKET BY HOUR**

Hour	August 1998 1st phase study	November 1998 2nd phase study
0 to 6	145 (37 %)	172 (45 %)
6 to 12	64 (17 %)	63 (17 %)
12 to 18	124 (31 %)	112 (30 %)
18 to 24	61 (15 %)	31 (8 %)
Total	394 (100%)	378 (100%)

Remarks: The data of August 1998 is the number of trucks for successive 7 days. The data of November 1998 is for 2 days and recalculated for 7days equivalent for the convenience of comparison.
Source: JICA Study Team, August and November 1998

Table 2-34 NUMBER OF TRUCKS ENTERING BY ORIGIN TO ABASTO MARKET BY HOUR

Hour	0 to 6	6 to 12	12 to 18	18 to 24	Total
Valley	16	8	8	3	35 (32 %)
Low land	5	3	4	3	15 (14 %)
Outside SC	17	7	16	2	42 (39 %)
Import	11	0	3	2	16 (15 %)
Total	49(45 %)	18(17 %)	31(29 %)	10(9 %)	108 (100%)

Source: JICA Study Team, November 1998

Table 2-35 NUMBER OF TRUCKS ENTERING ABASTO FROM MIDNIGHT TO 6AM. BY ORIGIN AND CAPACITY

	Less than 5 tons	5 to 10 tons	10 to 20 tons	20 to 30 tons	Total
Valley	10	3	2	0	15 (31 %)
Low land	1	2	2	0	5 (10 %)
Outside SC	4	3	4	4	15 (30 %)
Import	1	2	3	8	14 (29 %)
Total	16 (33 %)	10 (20 %)	11 (22 %)	12 (25 %)	49 (100%)

Source: JICA Study Team, November 1998

Table 2-36 PRODUCTION VOLUMES AND PRODUCTIVITIES OF POTATO AND TOMATO IN MERCOSUR AND PACT ANDEAN COUNTRIES

	Potato Production Q'ty (1,000 tons)	Potato Productivity (Ton/ha)	Tomato Production Q'ty (1,000 tons)	Tomato Productivity (Ton/ha)
Argentine	2,000	20.0	740	30.8
Bolivia	**725**	**5.6**	**46**	**10.2**
Brazil	2,699	14.3	2,639	43.5
Chile	828	13.8	1,370	63.0
Columbia	2,594	16.4	300	23.4
Paraguay	2	6.1	43	37.0
Peru	2,265	9.8	214	32.0
USA	22,549	39.0	11,700	60.7

Source: FAO Production Yearbook 1996 (Vol.50)

Table 2-37 THE PRICE OF FRUIT & VEGETABLE IN CENTRAL MARKET, BUENOS AIRES, ARGENTINE IN 1998

Unit: Upper column, Pesos/kg; Lower column, Bs./kg equivalent

	POTATO	TOMATO	ONION	CARROT	BANANA	CITRUS	PINE-APPLE	PEACH
Jan.	0.12	0.36	0.18	0.16	0.44	0.24	0.71	0.53
	(0.67)	(2.02)	(1.01)	(0.90)	(2.46)	(1.34)	(3.98)	(2.97)
Feb.	0.11	0.31	0.21	0.13	0.57	0.33		0.76
	(0.62)	(1.74)	(1.18)	(0.73)	(3.19)	(1.85)		(4.26)
Mar.	0.1	0.34	0.20	0.15	0.45	0.44		0.94
	(0.56)	(1.90)	(1.12)	(0.84)	(2.52)	(2.46)		(5.26)
Apr.	0.15	0.36	0.15	0.24	0.36	0.30	0.96	0.86
	(0.84)	(2.02)	(0.84)	(1.34)	(2.02)	(1.68)	(5.38)	(4.82)
May	0.14	0.41	0.15	0.15	0.43	0.23	0.94	
	(0.78)	(2.30)	(0.84)	(0.84)	(2.41)	(1.29)	(5.26)	
June	0.11	0.39	0.13	0.13	0.47	0.21	0.90	
	(0.62)	(2.18)	(0.73)	(0.73)	(2.63)	(1.18)	(5.04)	
July	0.1	0.52	0.14	0.13	0.64	0.27		
	(0.56)	(2.91)	(0.78)	(0.73)	(3.58)	(1.51)		
Aug.	0.09	0.84	0.13	0.12	0.55	0.25	0.40	5.30
	(0.50)	(4.70)	(0.73)	(0.56)	(3.08)	(1.40)	(2.24)	(29.68)
Sep.	0.08	0.75	0.23	0.12	0.38	0.24	0.83	5.16
	(0.45)	(4.20)	(1.29)	(0.56)	(2.13)	(1.34)	(4.65)	(28.90)

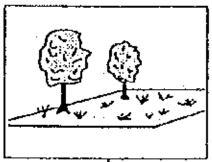
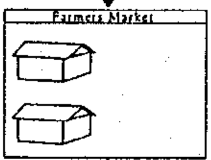
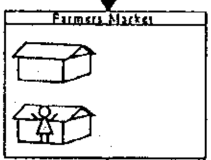
Remark: 1 Peso = US$ 1、 US$ 1 = Bs. 5.6
Source: SIIAP (Mercado Central de Buenos Aires)

Table 2-38 WHOLESALE PRICE OF FRUIT & VEGETABLE IN BRAZIL

Commodity	Weight (kg)	Price (US$)	Equivalent Bs./kg
Potato	50	7.08	0.79
Tomato	24	7.24	1.69
Onion	20	11.33	3.17
Carrot	25	5.44	1.22
Banana	18	8.42	2.62
Citrus	25	7.02	1.57
Pineapple	100 unit	69.12	3.86/unit
Peach	14 pieces	2.32	0.93/piece

Source: CEAGESP, Private communication (December 2, 1998)

Table 2-39 **HISTORY OF MANAGEMENT ORGANIZATION IN ABASTO MARKET BEFORE 1994 - 1/2**

Year	Law/ Regulation Construction/ Rehabilitation	Abasto Market	Management Organization: Committee	Management Organization: Management Body
1978	Municipal Gov. decided the construction site of Abasto Market			
1981	Accoding to S.D. 17921, MACA is authorized to acquire aloan from Bolivia's Central Bank for construction of Farmers Market. Accoding to S.D. 18057, Municipal Gov. is in charge of implementation of construction of Farmers Market.			
1983	Inter-institutional agreement between MACA and Municipal Gov. on construction of Abasto Market was signed Two bldgs. were constructed by the fund of Argentina.			
1984	According to S.D. 20015,20427, buildings were handed over to FSUTCSC. According to S.D. 20136, Department Committee is in charge of management of Farmers' market.		Department Committee	• Municipal Gov. • FSUTCSC
1985	According to Law, Municipal Gov. is in charge of construction, administration and maintenance of Municipal Market.		Department Committee	• Municipal Gov. • FSUTCSC
1987	According to S.D., Department Committee is reorganized to CRAMA		CRAMA	• Municipal Gov. • FSUTCSC

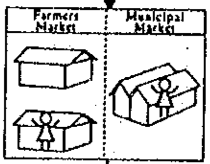
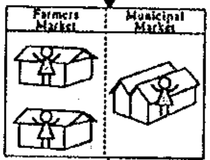
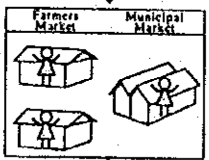
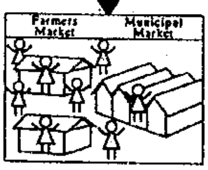
Legend

 Building

 Users Organization

Source : Field Survey of Phase I of Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz, Bolivia, 1998

Table 2-39 **HISTORY OF MANAGEMENT ORGANIZATION IN ABASTO MARKET BEFORE 1994 - 2/2**

Year	Law/ Regulation Construction/ Rehabilitation	Abasto Market	Management Organization: Committee	Management Organization: Management Body
1990	Cooperativa 2 de Junio constructed bldg. by USUFRUCT system. Basic infrastructure was constructed by Emergency Social Fund, CORDECRUZ and Municipal Gov.		CRAMA	• Municipal Gov. • FSUTCSC • Cooperativa 2 de Junio
1994			CRAMA no longer function	• Municipal Gov. • FSUTCSC • ASPROA • Cooperativa 2 de Junio
1995	According to Decentralization Law, Central Gov. conferred the power to Prefecture to establish committee in place of CRAMA		Operation Management Committee (no legal status). This committee disappeared within this year.	• Municipal Gov. • FSUTCSC • ASPROA • Cooperativa 2 de Junio
1996	Municipal Gov. rehabilitated infrastructure		M/P Follow-up Committee (no legal status)	• Municipal Gov. • FSUTCSC • ASPROA • Cooperativa 2 de Junio
1997 1998	Cooperativa 2 de Junio expanded its building		Coordination and Follow-up Committee of M/P (no legal status)	• Municipal Gov. • ASPROA • 19 de Marzo • ASPROCA • ACMAPA • 24 de September AIPPA • ASPROCE • Cooperativa 2 de Junio

Legend

 Building

 Users Organization

Source : Field Survey of Phase I of Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz, Bolivia, 1998

Table 2-40 CHANGE OF INSTITUTION, INFRASTRUCTURE AND FACILITIES IN ABASTO MARKET FROM 1994 TO 1998

Item	1994 (M/P Stage)		1998 (F/S Stage)	
	Farmers' Market	Municipal Market	Farmers' Market	Municipal Market
(1) Law/Regulation	According to S.D. of 1987, CRAMA is dictated as a management organization	According to law of 1985, Municipal Gov. is in charge of construction, administration and maintenance of municipal Market	After Decentralization Law of 1995. S.D. of 1987 CRAMA was made invalid. Prefectural Resolution is enough to establish organization such as CRAMA. In 1995, Municipal Ordinance of Santa Cruz authorized the expropriation of real estate for expansion of Abasto Market.	Municipal Gov. is in charge of construction, administration and maintenance.
(2) Management organization and management	CRAMA no longer functions. Abasto market was operated and managed by FSUTCSC, ASPROA and Municipal Gov.	Cooperativa 2 de Junio managed in cooperation with Municipal Gov.	FSUTCSC and ASPROA split into seven associations. The said 7 associations and Municipal Gov. manage and operate Abasto Market. Coordination and Follow-up Committee of M/P was established in 1997.	Cooperativa 2 de Junio managed in cooperation with Municipal Gov.
(3) Facilities/Infrastructure and O/M				
1) Extent of area	16,000 m^2	16,000 m^2	28,000 m^2 Increased land area are utilized as parking area.	16,000 m^2
2) Cooperative Building	-	7,000 m^2	-	14,000 m^2 Coopprativa bldg. was expanded in 1995.
3) Temporary sheds	4 sheds	-	12 sheds	-
4) Infrastructure				
a. Pavement	Some areas were not paved	-	All areas have been paved	-
b. Parking area	-	-	About 50 trucks parking area within market decreased due to occupation of passage by increased merchants.	-
c. Cover of drain trench outside market	Drain trench was not covered. Sanitary condition was bad.	Drain trench was not covered. Sanitary condition was bad.	Drain trench has been covered. Sanitary condition is good.	Drain trench was not covered. Sanitary condition is good.
d. Garbage area	Garbage area was located within the market.	-	Garbage areas have been located to three points outside the market.	-

Remark: S.D.; Supreme Decree
Source: Field survey of Phase I of Feasibility Study for the Improvement of Agricultural Marketing system in Santa Cruz, Bolivia, 1998

Table 2-41 LEGAL BASIS AND STATUS OF EXISTING MANAGEMENT SYSTEM IN ABASTO MARKET

Item		Draft Law/Regulation	Operation/Maintenance 1994	1998
Organization				
• Committee		O	O	X
Management				
• Kinds of commodities		O	X	X
• Qualification and registration of users		O	X	X
• Transaction system	*Auction*	O	X	X
	Direct negotiation/ Consignment	O	O	O
	Prohibition of transaction among wholesalers	O	X	X
	Cash Payment	O	X	X
• Fee system	*Municipal GOV.*	O	O	X
	Users organization	X	O	O
• Operation days and hours		O	Δ	Δ
• Utilization of facilities		O	X	X
• Collection/Publication of marketing information	*Collection : Price*	O	Δ	Δ
	: Volume	O	Δ	Δ
	Publication : Price	O	X	X
	: Volume	O	X	X
• Monitoring of utilization of selling section		O	X	X
• Standard of product		O	X	X
• Prohibition/Penalties		O	X	X
Operation				
• Security control		O	O	O
• Price/weight control		O	Δ	Δ
• Control of entering, circulating and parking of vehicles		O	Δ	Δ
• Mediation of conflict		O	Δ	Δ
• Sanitary control		O	O	O
• Garbage collection		O	O	O

Remark: (1) Law/Regulation o : Exist x: Not Exist
(2) Operation/Maintenance o : Implemented Δ : Partially implemented x : Not implemented

Source: (1) Law/Regulation - Law/Regulation on Wholesale Market in Japan, Brazil and Germany.
- Draft regulation prepared by CRAMA in 1987.
- Draft regulation prepared by Coordination Committee in 1998

(2) Field Survey of Phase I of Feasibility Study for the Improvement of Agricultural Marketing System in Santa Cruz, Bolivia, 1998

Table 2-42 ORGANIZATION PROVIDING AGRICULTURE CREDIT IN VALLEY AREAS

Province	Organizations
Florida	ASOHFRUT, PRECONAT, Saving & Credit Cooperatives, PDA (NGO)
Caballero	ASOHFRUT, Saving & Credit Cooperatives, EMCA(NGO), ICO (NGO)
Vallegrande	ICO, Saving & Credit Cooperatives

Remark:
1) PRECONAT: Programa Ecologia y Naturaleza; ICO: Instituto de Capacitacion del Oriente
2) PDA: Proyecto Desarrollo Agropecuario

Table 2-43 TERMS AND CONDITIONS OF AGRICULTURE CREDIT IN VALLEY AREAS

Organization	Target Groups for Credit	Terms & Conditions
ASOHFRUT	Member of organization	farming purpose, maximum US$2,000, period 12 - 24 months, interest 12%
SAVING & CREDIT COOPERATIVES	Member of cooperatives	any purpose, maximum US$10,000, period 3 years, interest > 20%
ICO	Caballero & Vallegrande	farming purpose, 450 beneficiaries
EMCA	Member of organization	farm inputs supply

Table 2-44 SUMMARY OF POSSIBLE FUND SOURCE FOR COLLECTION CENTER

Financial Institution	Loan Conditions / Guarantee	Interest (% per annum)	Credit Limit US$	Grace Period (Year)	Objective of Credit
FINDESA	Guarantee 3 times value of loan	16	50,000	1	Small and large scale producers
Banco Ganadero	Ranching	16	-	2	Ranchers
FDC	Projects with Social & economic benefits	-	-	-	Rural communities with fewer than 5,000 inhabitants
Cooperativa de Ahorro y Credito	For members. Land/house + Another Guarantor	20	3,000	-	Small - medium producers
BOLINVEST	Acts as technical "guarantor"	-	-	-	To promote commercialization, export, and foreign investment
FONDECO	Land title & group guarantor	15~24	2,000	-	Non-profit organization to assist poor population both in rural & urban settings
ASOHFRUT	Land / house title & group guarantor	12	1,000/Ha	-	Production, planting and plant/seed production

Table 3-1 ASSESSMENT OF READINESS FOR DEVELOPMENT OF C/D CENTER - 1/2

Assessment Criteria	Target Collection Area		
	Florida Province		
	Samaipata Collection Area	Mairana Collection Area	Pampa Grande Collection Area
1. Existence of Facility for Use as C/D	ASOHFRUT collection facility	Not Available	Not Available
2. Production Volumes of Target Commodities at Full Operation Stage(t)	11,100	10,100	19,900
3. Currently Prevailing Marketing System	Farmers direct marketing to ABASTO	Farmers direct marketing to ABASTO	Farmers direct marketing to ABASTO
4. Results of Discussion Meeting	Concensus obtained among participants at the meeting held on Nov. 20	Concensus obtained among participants at the meeting held on Nov. 19	No concensus obtained among participants at the meeting held on Nov. 20
5. Coverage of Existing Farmers Organziation	ASOHFRUT : registered member 170 AGROPLAN: about 90 members	ASOHFRUT : registered member 111	ASOHFRUT : registered member 234
6. Activities of Supporting organization & Intention of Local Government Identified through 3 Discussion Meeting Held at Municipal	Municipal government has strong intention to promote fruit production and to establish C/D	Municipal government has strong intention to establish C/D	Municipal government support C/D
7. Existence of Movement for Cooperative Marketing	AGROPLAN(about 90 memebrs) directly shipping commodities produced under organic farming to St. Cruz(supermarket etc.)	-	Influence of Farners Market Project appears to be substantial(negative to C/D) Social conflict between Pampa Grande and Los Negros comunity(negative factor)
8. Construction Costs per Ton of Products Collected at Full Operation Stage(US$/t)	9.5 (San Isidro: US$ 8.0/t)	68.3	51.2
Overall Assessment	1st Phase Development	2nd Phase Development	2nd Phase Development

Table 3-1 ASSESSMENT OF READINESS FOR DEVELOPMENT OF C/D CENTER - 2/2

	Taget Collection Area		
	Caballero Province		Vallegrande Province
Assessment Criteria	Comarapa Collection Area	Saipina Collection Area	Vallegrande Collection Area
1. Existence of Available Facility	No	No	No
2. Production Volumes of Target Commodities at Full Operation Stage(t)	12,600	21,700	21,900
3. Currently Prevailing Marketing System	Farmers direct marketing to ABASTO & Cochabamba	Consignment marketing to Cochabamba (highly positive factor to use of C/D)	Seeling to intermediary at site (destination: ABASTO)
4. Results of Discussion Meeting	Concensus obtained among participants at the meeting held on Nov. 27	Concensus obtained among participants at the meeting held on Nov. 27	Concensus obtained among participants at the meeting held on Nov. 27
5. Coverage of Existing Farmers Organziation	All producres in target collection areas (irigated areas) organized into water users associations, hoewever, conflict between Lapisa area(newly irrigated area) & others areas for water distribution	All producres in target collection areas (irigated areas) organized into water users associations	ASOHFRUT : registered member 61 CAPA(all vallegrande prov.): 700
6. Activities of Supporting organization & Intention of Local Government	Municipal government support C/D	Municipal government support C/D	Municipal government has strong intention to promote fruit production and to establish C/D ICO will provide technical support
7. Existence of Movement for Cooperative Marketing & Others	EMCA prsesident was reluctant to take management role of C/D in Saipina, while manager accepted the role. Need to have concensus among members.	All the representatives of water users associations supported C/D center	Establishment of FDF(Fundacion para el Desarrollo Fruticola de la Provincia) planned by initiative of ICO CAPA has intention & plan
8. Construction Costs per Ton of Products Collected at Full Operation Stage	57.0 (San Isidro: US$ 8.5/t)	36.9	32.7
Overall Assessment	2nd Phase Development	1st Phase Development	1st Phase Development

Table 3-2 PROJECTED CROPPED AREA AND CROP PRODUCTION IN 2005 UNDER WITH IRRIGATION DEVELOPMENT PROJECTS: COMARAPA & SAIPINA

Crops	Comarapa Area Cropped Area (ha)	Comarapa Area Production (t)	Saipina Area Cropped Area (t/ha)	Saipina Area Production (t)
1. Root Crop				
Potatoes	440	4,840	940	10,340
2. Vegetables				
Tomato	150	2,550	580	9,860
Green Pepper	100	1,200		
Others	250	1,250	470	2,350
Sub-total	500	5,000	1,050	12,210
3. Fruits	40	400	0	0
4. Others				
Sugarcane				
Others				
Sub-total	0	0	0	0
Total	980	10,240	1,990	22,550

Remarks 1: Assumed as follows;
- All potaoes & vegetables cultivated under irrigation
- Cropping pattern under irrigation: potato 45 %, tomato 15%, green pepper 10%, fruit 5 %, others 25 %
- Cropping intensity in irrigated area: about 130 % of irrigated areas(750ha)

Remarks 2: Target Commodities: Commodities for collection under the present study

Remarks 3: "Others" in 2. Vegetables represented by pea/bean.

Remarks 4: "Others" in 3. Fruits represented by peach

Remarks 5: Assumed as follows;
- All potaoes & vegetables cultivated under irrigation
- Cropping pattern under irrigation: potato 40 %, tomato 25%, sugarcane 15%,others vegetables 20 %
- Cropping intensity in irrigated area: about 140 % of irrigated areas(1,675ha)

Remarks 6: Target Commodities: Commodities for collection under the present study

Remarks 7: "Others" in 2. Vegetablesrepresented by pea/bean.

Source: Data presented by PRICRUZ

Table 3-3 PROJECTED CROPPED AREA AND CROP PRODUCTION IN 2010 UNDER WITH IRRIGATION DEVELOPMENT PROJECTS: COMARAPA & VALLEGRANDE

Crops	Comarapa Area Cropped Area (ha)	Comarapa Area Production (t)	Vallegande Area Cropped Area (t/ha)	Vallegande Area Production (t)
1. Root Crop				
Potatoes	450	5,400	950	11,400
2. Vegetables				
Tomato	160	3,040	150	2,550
Green Pepper	100	1,300		
Others	250	1,500	200	2,200
Sub-total	510	5,840	350	4,750
3. Fruits				
Peach			180	1,980
Plum			80	880
Others	50	550	260	2,860
Sub-total	50	550	520	5,720
4. Others				
Sugarcane				
Others				
Sub-total	0	0		0
Total	1,010	11,790	1,820	21,870

Remarks 1: Assumed as follows;
- All potaocs & vegetables cultivated under irrigation
- Cropping pattern under irrigation: potato 45 %, tomato 15%, green pepper 10%, fruit 5 %, others 25 %
- Cropping intensity in irrigated area: about 130 % of irrigated areas(780ha)

Remarks 2: Target Commodities: Commodities for collection under the present study

Remarks 3: "Others" in 2. Vegetables represented by pea/bean.

Remarks 4: "Others" in 3. Fruits represented by peach

Remarks 5: Assumed as follows;
- All vegetables cultivated under irrigation
- Cropped areas of fruits: peach 35%, plum 15%, apple 20% others 30 %
- Cropping pattern under irrigation: potato 35 %, tomato 10%, sugarcane 13%, others vegetables 14 %, fruits 28 %
- Cropping intensity in irrigated area: about 115 % of irrigated areas(1,250ha)
- Under rainfed: potato 450ha & fruit 120 ha

Remarks 6: Target Commodities: Commodities for collection under the present study

Remarks 7: "Others" in 2.Vegetables represented by pea/bean

Source: Data presented by PRICRUZ

Table 3-4 ESTIMATED AND PROJECTED PRODUCTION AND MARKEING VOLUMES OF TARGET COMMODITIES IN VALLEY REGION

Commodity	Items	Province: Florida	Province: Caballero	Province: Vallegrande	Valley Region Total
Base Year(1998, estimation) & 2000(projection)					
1. Root Crop(Potato)	Production(000 t)	15.0	16.7	22.0	53.7
	Commercialization Rate(%)	85	90	80	85
	Marketing Volume(000 t)	12.8	15.0	17.6	45.4
2. Vegetables	Production(000 t)	20.9	21.8	7.3	50.0
	Commercialization Rate(%)	85	85	85	85
	Marketing Volume(000 t)	17.8	18.5	6.2	42.5
3. Fruits	Production(000 t)	6.7	0.4	6.0	13.1
	Commercialization Rate(%)	85	85	85	85
	Marketing Volume(000 t)	5.7	0.3	5.1	11.1
Total	Production(000 t)	42.6	38.9	35.3	116.8
	Commercialization Rate(%)	85	87	82	85
	Marketing Volume(000 t)	36.2	33.9	28.9	99.0
Year 2005(projection)					
1. Root Crop(Potato)	Production(000 t)	15.0	21.1	22.0	58.1
	Commercialization Rate(%)	86	87	85	86
	Marketing Volume(000 t)	12.9	18.4	18.7	50.0
2. Vegetables	Production(000 t)	20.9	27.2	7.3	55.4
	Commercialization Rate(%)	86	88	87	87
	Marketing Volume(000 t)	18.0	23.9	6.4	48.3
3. Fruits	Production(000 t)	6.7	0.4	6.0	13.1
	Commercialization Rate(%)	87	85	85	86
	Marketing Volume(000 t)	5.8	0.3	5.1	11.3
Total	Production(000 t)	42.6	48.7	35.3	126.6
	Commercialization Rate(%)	86	88	85	86
	Marketing Volume(000 t)	36.7	42.6	30.2	109.5
Year 2010(projection)					
1. Root Crop(Potato)	Production(000 t)	16.5	23.3	24.1	63.9
	Commercialization Rate(%)	87	89	85	87
	Marketing Volume(000 t)	14.4	20.7	20.5	55.6
2. Vegetables	Production(000 t)	23.0	30.2	10.3	63.5
	Commercialization Rate(%)	90	90	90	90
	Marketing Volume(000 t)	20.7	27.2	9.3	57.2
3. Fruits	Production(000 t)	8.2	0.6	8.4	17.2
	Commercialization Rate(%)	90	90	90	90
	Marketing Volume(000 t)	7.4	0.5	7.6	15.5
Total	Production(000 t)	47.7	54.1	42.8	144.6
	Commercialization Rate(%)	89	90	87	89
	Marketing Volume(000 t)	42.4	48.5	37.3	128.2

Source: Results of study by JICA Study Team, 1998

Table 3-5 COMMERCIALIZATION RATES AND TARGET COLLECTION RATES ASSUMED

Collection Area/Commodity	1st Year of Operation Rates(%)			2nd Year of Operation Rates(%)			3rd Year of Operation Rates(%)			4th Year of Operation Rates(%)			5th Year of Operation & after Rates(%)		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1. San Isidro Collection Area															
Potatoes	90	30	27	90	40	36	90	50	45	90	60	54	90	70	63
Vegetables	85	30	26	85	40	34	85	50	43	85	60	51	90	70	63
Fruits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Samaipata Collection Area															
Potatoes	80	20	16	80	30	24	80	40	32	80	50	40	85	60	51
Vegetables	85	20	17	85	30	26	85	40	34	85	50	43	90	60	54
Fruits	85	20	17	85	30	26	85	50	43	85	70	60	90	80	72
3. Vallegrande Collection Area															
Potatoes	80	20	16	80	30	24	80	40	32	80	50	40	85	60	51
Vegetables	85	30	26	85	40	34	85	50	43	85	60	51	90	70	63
Fruits	85	30	26	85	40	34	85	50	43	85	60	51	90	70	63
4. Saipina Collection Area															
Potatoes	90	30	27	90	40	36	90	50	45	90	60	54	90	70	63
Vegetables	85	30	26	85	40	34	85	50	43	85	60	51	90	70	63
Fruits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Mairana Collection Area															
Potatoes	80	30	24	80	40	32	80	60	48	80	70	56	85	80	68
Vegetables	85	30	26	85	40	34	85	60	51	85	70	60	90	80	72
Fruits	85	30	26	85	40	34	85	60	51	85	70	60	90	80	72
6. Pampa Grande Collection Area															
Potatoes	90	20	18	90	30	27	90	50	45	90	60	54	90	70	63
Vegetables	85	20	17	85	30	26	85	50	43	85	60	51	90	70	63
Fruits	85	20	17	85	30	26	85	50	43	85	60	51	90	70	63
7. Comarapa Collection Area															
Potatoes	80	30	24	80	40	32	80	50	40	80	60	48	85	70	60
Vegetables	85	30	26	85	40	34	85	50	43	85	60	51	90	70	63
Fruits	85	30	26	85	40	34	85	50	43	85	60	51	90	70	63

Remarks: Rates(%) 1 -- commerciarization rate, 2 -- rate of collection, 3 -- target collection rate(1 x 2)

Table 3-6 ESTIMATED ANNUAL TARGET COLLECTION VOLUMES FROM THE 1ST YEAR TO FULL OPERATION STAGE - 1/4

		San Isidro Collection Area				Samaipata Collection Area				
Year	Factors	Development Stage	Potato	Vegetables	Total	Development Stage	Potato	Vegetables	Fruits	Total
2001	1. Production(t)	1st Year	6,000	9,900	15,900					
	2. Commercialization Rate(%)		90	85	-					
	3. Rate of Collection(%)		30	30	-					
	4. Target Collection Rate(%; 2 x 3)		27	26	26					
	5. Target Collection Volume(t: 1 x 4 /100)		1,620	2,520	4,140					
2002	1. Production(t)	2nd Year	6,000	9,900	15,900					
	2. Commercialization Rate(%)		90	85	-					
	3. Rate of Collection(%)		40	40	-					
	4. Target Collection Rate(%; 2 x 3)		36	34	35					
	5. Target Collection Volume(t: 1 x 4 /100)		2,160	3,370	5,530					
2003	1. Production(t)	3rd Year	6,000	9,900	15,900	1st Year	5,200	2,250	1,900	9,350
	2. Commercialization Rate(%)		90	85	-		80	85	85	-
	3. Rate of Collection(%)		50	50	-		20	20	20	-
	4. Target Collection Rate(%; 2 x 3)		45	43	43		16	17	17	16
	5. Target Collection Volume(t: 1 x 4 /100)		2,700	4,210	6,910		830	380	320	1,530
2004	1. Production(t)	4th Year	6,000	9,900	15,900	2nd Year	5,200	2,250	1,900	9,350
	2. Commercialization Rate(%)		90	85	-		80	85	85	-
	3. Rate of Collection(%)		60	60	-		30	30	30	-
	4. Target Collection Rate(%; 2 x 3)		54	51	52		24	26	26	25
	5. Target Collection Volume(t: 1 x 4 /100)		3,240	5,050	8,290		1,250	570	490	2,310
2005	1. Production(t)	5th Year	6,000	9,900	15,900	3rd Year	5,200	2,250	1,900	9,350
	2. Commercialization Rate(%)		90	90	-		80	85	85	-
	3. Rate of Collection(%)		70	70	-		40	40	50	-
	4. Target Collection Rate(%; 2 x 3)		63	63	63		32	34	43	35
	5. Target Collection Volume(t: 1 x 4 /100)		3,780	6,240	10,020		1,660	770	810	3,240
2006	1. Production(t)	Full Operation 6th Year	6,600	10,900	17,500	4th Year	5,200	2,250	1,900	9,350
	2. Commercialization Rate(%)		90	90	-		80	85	85	-
	3. Rate of Collection(%)		70	70	-		50	50	70	-
	4. Target Collection Rate(%; 2 x 3)		63	63	63		40	43	60	45
	5. Target Collection Volume(t: 1 x 4 /100)		4,160	6,870	11,030		2,080	960	1,130	4,170
2007	1. Production(t)	Full Operation 7th Year	6,600	10,900	17,500	5th Year	5,200	2,250	1,900	9,350
	2. Commercialization Rate(%)		90	90	-		85	90	90	-
	3. Rate of Collection(%)		70	70	-		60	60	80	-
	4. Target Collection Rate(%; 2 x 3)		63	63	63		51	54	72	56
	5. Target Collection Volume(t: 1 x 4 /100)		4,160	6,870	11,030		2,650	1,220	1,370	5,240
2008	1. Production(t)	Full Operation 8th Year	6,600	10,900	17,500	6th Year	5,700	2,500	2,500	10,700
	2. Commercialization Rate(%)		90	90	-		85	90	90	-
	3. Rate of Collection(%)		70	70	-		60	60	80	-
	4. Target Collection Rate(%; 2 x 3)		63	63	63		51	54	72	57
	5. Target Collection Volume(t: 1 x 4 /100)		4,160	6,870	11,030		2,910	1,350	1,800	6,060
2009	1. Production(t)	Full Operation 9th Year	6,600	10,900	17,500	7th Year	5,700	2,500	2,700	10,900
	2. Commercialization Rate(%)		90	90	-		85	90	90	-
	3. Rate of Collection(%)		70	70	-		60	60	80	-
	4. Target Collection Rate(%; 2 x 3)		63	63	63		51	54	72	57
	5. Target Collection Volume(t: 1 x 4 /100)		4,160	6,870	11,030		2,910	1,350	1,940	6,200
2010	1. Production(t)	Full Operation 10th Year	6,600	10,900	17,500	Full Operation 8th Year	5,700	2,500	2,900	11,100
	2. Commercialization Rate(%)		90	90	-		85	90	90	-
	3. Rate of Collection(%)		70	70	-		60	60	80	-
	4. Target Collection Rate(%; 2 x 3)		63	63	63		51	54	72	57
	5. Target Collection Volume(t: 1 x 4 /100)		4,160	6,870	11,030		2,910	1,350	2,090	6,350

Table 3-6 ESTIMATED ANNUAL TARGET COLLECTION VOLUMES FROM THE 1ST YEAR TO FULL OPERATION STAGE - 2/4

Year	Factors	Vallegrande Collection Area: Development Stage	Vallegrande: Potato	Vallegrande: Vegetables	Vallegrande: Fruits	Vallegrande: Total	Saipina Collection Area: Development Stage	Saipina: Potato	Saipina: Vegetables	Saipina: Total
	1. Production(t)									
	2. Commercialization Rate(%)									
2001	3. Rate of Collection(%)									
	4. Target Collection Rate(%; 2 x 3)									
	5. Target Collection Volume(t: 1 x 4 /100)									
	1. Production(t)									
	2. Commercialization Rate(%)									
2002	3. Rate of Collection(%)									
	4. Target Collection Rate(%; 2 x 3)									
	5. Target Collection Volume(t: 1 x 4 /100)									
	1. Production(t)		9,900	2,000	3,500	15,400		7,900	9,600	17,500
	2. Commercialization Rate(%)		80	85	85	-		90	85	-
2003	3. Rate of Collection(%)	1st Year	20	30	30	-	1st Year	30	30	-
	4. Target Collection Rate(%; 2 x 3)		16	26	26	19		27	26	26
	5. Target Collection Volume(t: 1 x 4 /100)		1,590	510	890	2,990		2,130	2,440	4,570
	1. Production(t)		9,900	2,000	3,500	15,400		8,600	10,100	18,700
	2. Commercialization Rate(%)		80	85	85	-		90	85	-
2004	3. Rate of Collection(%)	2nd Year	30	40	40	-	2nd Year	40	40	-
	4. Target Collection Rate(%; 2 x 3)		24	34	34	28		36	34	35
	5. Target Collection Volume(t: 1 x 4 /100)		2,380	680	1,190	4,250		3,100	3,430	6,530
	1. Production(t)		9,900	2,000	3,500	15,400		9,400	11,200	20,600
	2. Commercialization Rate(%)		80	85	85	-		90	85	-
2005	3. Rate of Collection(%)	3rd Year	40	50	50	-	3rd Year	50	50	-
	4. Target Collection Rate(%; 2 x 3)		32	43	43	36		45	43	44
	5. Target Collection Volume(t: 1 x 4 /100)		3,170	850	1,490	5,510		4,230	4,760	8,990
	1. Production(t)		9,900	2,000	3,500	15,400		9,400	11,200	20,600
	2. Commercialization Rate(%)		80	85	85	-		90	85	-
2006	3. Rate of Collection(%)	4th Year	50	60	60	-	4th Year	60	60	-
	4. Target Collection Rate(%; 2 x 3)		40	51	51	44		54	51	52
	5. Target Collection Volume(t: 1 x 4 /100)		3,960	1,020	1,790	6,770		5,080	5,710	10,790
	1. Production(t)		9,900	2,000	3,500	15,400		9,400	11,200	20,600
	2. Commercialization Rate(%)		85	90	90	-		90	90	-
2007	3. Rate of Collection(%)	5th Year	60	70	70	-	5th Year	70	70	-
	4. Target Collection Rate(%; 2 x 3)		51	63	63	55		63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		5,050	1,260	2,200	8,510		5,920	7,060	12,980
	1. Production(t)		11,100	3,500	4,800	19,400		10,300	12,400	22,700
	2. Commercialization Rate(%)		85	90	90	-	Full Operation	90	90	-
2008	3. Rate of Collection(%)	6th Year	60	70	70	-	6th Year	70	70	-
	4. Target Collection Rate(%; 2 x 3)		51	63	63	56		63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		5,660	2,210	3,020	10,890		6,490	7,810	14,300
	1. Production(t)		11,300	4,300	5,300	20,900		10,300	12,400	22,700
	2. Commercialization Rate(%)		85	90	90	-	Full Operation	90	90	-
2009	3. Rate of Collection(%)	7th Year	60	70	70	-	7th Year	70	70	-
	4. Target Collection Rate(%; 2 x 3)		51	63	63	57		63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		5,760	2,710	3,340	11,810		6,490	7,810	14,300
	1. Production(t)		11,400	4,700	5,800	21,900		10,300	12,400	22,700
	2. Commercialization Rate(%)	Full Operation	85	90	90	-	Full Operation	90	90	-
2010	3. Rate of Collection(%)	8th Year	60	70	70	-	8th Year	70	70	-
	4. Target Collection Rate(%; 2 x 3)		51	63	63	57		63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		5,810	2,960	3,650	12,420		6,490	7,810	14,300

Table 3-6 ESTIMATED ANNUAL TARGET COLLECTION VOLUMES FROM THE 1ST YEAR TO FULL OPERATION STAGE - 3/4

		Mairana Collection Area					Pampa Grande Collection Area				
Year	Factors	Development Stage	Potato	Vegetables	Fruits	Total	Development Stage	Potato	Vegetables	Fruits	Total
	1. Production(t)										
	2. Commercialization Rate(%)										
2001	3. Rate of Collection(%)										
	4. Target Collection Rate(%; 2 x 3)										
	5. Target Collection Volume(t: 1 x 4 /100)										
	1. Production(t)										
	2. Commercialization Rate(%)										
2002	3. Rate of Collection(%)										
	4. Target Collection Rate(%; 2 x 3)										
	5. Target Collection Volume(t: 1 x 4 /100)										
	1. Production(t)										
	2. Commercialization Rate(%)										
2003	3. Rate of Collection(%)										
	4. Target Collection Rate(%; 2 x 3)										
	5. Target Collection Volume(t: 1 x 4 /100)										
	1. Production(t)		1,700	4,900	2,500	9,100		4,500	11,700	1,300	17,500
	2. Commercialization Rate(%)		80	85	85	-		90	85	85	-
2004	3. Rate of Collection(%)	1st Year	30	30	30	-	1st Year	20	20	20	-
	4. Target Collection Rate(%; 2 x 3)		24	26	26	25		18	17	17	17
	5. Target Collection Volume(t: 1 x 4 /100)		410	1,250	640	2,300		810	1,990	220	3,020
	1. Production(t)		1,700	4,900	2,500	9,100		4,500	11,700	1,300	17,500
	2. Commercialization Rate(%)		80	85	85	-		90	85	85	-
2005	3. Rate of Collection(%)	2nd Year	40	40	40	-	2nd Year	30	30	30	-
	4. Target Collection Rate(%; 2 x 3)		32	34	34	34		27	26	26	26
	5. Target Collection Volume(t: 1 x 4 /100)		540	1,670	850	3,060		1,220	2,990	330	4,540
	1. Production(t)		1,700	4,900	2,500	9,100		4,500	11,900	1,300	17,700
	2. Commercialization Rate(%)		80	85	85	-		90	85	85	-
2006	3. Rate of Collection(%)	3rd Year	60	60	60	-	3rd Year	50	50	50	-
	4. Target Collection Rate(%; 2 x 3)		48	51	51	51		45	43	43	43
	5. Target Collection Volume(t: 1 x 4 /100)		820	2,500	1,280	4,600		2,030	5,060	550	7,640
	1. Production(t)		1,700	4,900	2,500	9,100		4,500	11,900	1,300	17,700
	2. Commercialization Rate(%)		80	85	85	-		90	85	85	-
2007	3. Rate of Collection(%)	4th Year	70	70	70	-	4th Year	60	60	60	-
	4. Target Collection Rate(%; 2 x 3)		56	60	60	59		54	51	51	52
	5. Target Collection Volume(t: 1 x 4 /100)		950	2,920	1,490	5,360		2,430	6,070	660	9,160
	1. Production(t)		1,700	4,900	2,500	9,100		4,500	11,900	1,300	17,700
	2. Commercialization Rate(%)		85	90	90	-		90	90	90	-
2008	3. Rate of Collection(%)	5th Year	80	80	80	-	5th Year	70	70	70	-
	4. Target Collection Rate(%; 2 x 3)		68	72	72	71		63	63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		1,160	3,530	1,800	6,490		2,840	7,500	820	11,160
	1. Production(t)		1,900	5,400	2,800	10,100		5,100	13,300	1,500	19,900
	2. Commercialization Rate(%)	Full Operation	85	90	90	-	Full Operation	90	90	90	-
2009	3. Rate of Collection(%)	6th Year	80	80	80	-	6th Year	70	70	70	-
	4. Target Collection Rate(%; 2 x 3)		68	72	72	71		63	63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		1,290	3,890	2,020	7,200		3,210	8,380	950	12,540
	1. Production(t)		1,900	5,400	2,800	10,100		5,100	13,300	1,500	19,900
	2. Commercialization Rate(%)	Full Operation	85	90	90	-	Full Operation	90	90	90	-
2010	3. Rate of Collection(%)	7th Year	80	80	80	-	7th Year	70	70	70	-
	4. Target Collection Rate(%; 2 x 3)		68	72	72	71		63	63	63	63
	5. Target Collection Volume(t: 1 x 4 /100)		1,290	3,890	2,020	7,200		3,210	8,380	950	12,540

Table 3-6 ESTIMATED ANNUAL TARGET COLLECTION VOLUMES FROM THE 1ST YEAR TO FULL OPERATION STAGE - 4/4

			Comarapa Collection Area				Overall				
Year	Factors	Development Stage	Potato	Vegetables	Fruits	Total	Year	Potato	Vegetables	Fruits	Total
2001	1. Production(t)							6,000	9,900	0	15,900
	2. Commercialization Rate(%)							-	-	-	-
	3. Rate of Collection(%)						2001	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)							-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)							1,620	2,520	0	4,140
2002	1. Production(t)							6,000	9,900	0	15,900
	2. Commercialization Rate(%)							-	-	-	-
	3. Rate of Collection(%)						2002	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)							-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)							2,160	3,370	0	5,530
2003	1. Production(t)							29,000	23,750	5,400	58,150
	2. Commercialization Rate(%)							-	-	-	-
	3. Rate of Collection(%)						2003	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)							-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)							7,250	7,540	1,210	16,000
2004	1. Production(t)		4,900	5,200	400	10,500		40,800	46,050	9,600	96,450
	2. Commercialization Rate(%)		80	85	85	-		-	-	-	-
	3. Rate of Collection(%)	1st Year	30	30	30	-	2004	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		24	26	26	25		-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		1,180	1,330	100	2,610		12,370	14,300	2,640	29,310
2005	1. Production(t)		4,900	5,200	400	10,500		41,600	47,150	9,600	98,350
	2. Commercialization Rate(%)		80	85	85	-		-	-	-	-
	3. Rate of Collection(%)	2nd Year	40	40	40	-	2005	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		32	34	34	33		-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		1,570	1,770	140	3,480		16,170	19,050	3,620	38,840
2006	1. Production(t)		4,900	5,200	400	10,500		42,200	48,350	9,600	100,150
	2. Commercialization Rate(%)		80	85	85	-		-	-	-	-
	3. Rate of Collection(%)	3rd Year	50	50	50	-	2006	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		40	43	43	41		-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		1,960	2,210	170	4,340		20,090	24,330	4,920	49,340
2007	1. Production(t)		4,900	5,200	400	10,500		42,200	48,350	9,600	100,150
	2. Commercialization Rate(%)		80	85	85	-		-	-	-	-
	3. Rate of Collection(%)	4th Year	60	60	60	-	2007	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		48	51	51	50		-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		2,350	2,650	200	5,200		23,510	28,050	5,920	57,480
2008	1. Production(t)		4,900	5,200	400	10,500		44,800	51,300	11,500	107,600
	2. Commercialization Rate(%)		85	90	90	-		-	-	-	-
	3. Rate of Collection(%)	5th Year	70	70	70	-	2008	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		60	63	63	61		-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		2,920	3,280	250	6,450		26,140	32,550	7,690	66,380
2009	1. Production(t)		5,300	5,700	600	11,600		46,200	54,500	12,900	113,600
	2. Commercialization Rate(%)	Full Operation	85	90	90	-		-	-	-	-
	3. Rate of Collection(%)	6th Year	70	70	70	-	2009	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		60	63	63	61		-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		3,140	3,590	380	7,110		26,960	34,600	8,630	70,190
2010	1. Production(t)		5,300	5,700	600	11,600		46,300	54,900	13,600	114,800
	2. Commercialization Rate(%)	Full Operation	85	90	90	-	Overall Full	-	-	-	-
	3. Rate of Collection(%)	7th Year	70	70	70	-	Operation	-	-	-	-
	4. Target Collection Rate(%; 2 x 3)		60	63	63	61	2010	-	-	-	-
	5. Target Collection Volume(t: 1 x 4 /100)		3,140	3,590	380	7,110		27,010	34,850	9,090	70,950

Table 3-7 CHARACTERISTICS EVALUATION OF TARGET AREAS FOR PRODUCTS C/D CENTER (SUMMARIZED TABLE)

	Ranking of each target area for the criteria						
	Samaipata	Mairana	Pampa Grande	San Isidro	Comarapa	Saipina	V. Grande
1 Production $ Supply Potential (production/target collection volume, position of target area in agriculture development's framework, potential for production expansion)	7	6	2	2	2	1	2
3 Possibility for Adaptation of Proposed Transshipping Method (presence of transshipment, employment ratio of local transporters, presence of transporters cooperative)	2	5	5	5	1	2	2
4 Beneficiaries (owner farmers ratio, no. of beneficiaries, illiteracy ratio)	4	7	4	1	4	1	1
7 Project Evaluation (economic/financial reliabilities, income redistribution)	5	7	5	1	3	1	4
2 Possibility for Organizing Farmers (farmers intention to participate in cooperative collection/distribution, presence of current farmers cooperative activities, presence of current water management association)	2	2	2	2	2	2	1
8 Effective Technology Transfer to the related persons	5	1	2	2	2	5	5
6 Environmental Impact Assessment (social impact to the related persons, environmental impact)	1	1	1	1	1	1	1
5 Site Condition (accessibility to C/D Center from farms, existing facilities available for C/D Center, reliability of land acquisition, necessity of large scale land preparation, infrastructure condition)	1	5	7	2	4	5	3

1st Group :
* high potential for production/supply volume / * high possibility for adaptation of transshipping method /
* high (comparative high) beneficiaries

3rd Group
* low potential for production/supply volume
* high possibility for adaptation of transshipping method
* low beneficiaries

4th Group
* low potential for production/supply volume
* low possibility for adaptation of transshipping method
* low beneficiaries

2nd Group
* high potential for production/supply volume
* low possibility for adaptation of transshipping method
* high-medium beneficiaries

Remark :
The numbers showed in this table indicate each target area's ranking considering 7 target areas for each Criteria. Therefore the lesser the number becomes, the more positive evaluation the target area gets in the Criteria.

Table 3-7 CHARACTERISTICS EVALUATION OF TARGET AREAS FOR PRODUCTS C/D CENTER (SUMMARIZED TABLE)

	Ranking of each target area for the criteria						
	Samaipata	Mairana	Pampa Grande	San Isidro	Comarapa	Saipina	V. Grande
1 Production $ Supply Potential (production/target collection volume, position of target area in agriculture development's framework, potential for production expansion)	7	6	2	2	2	1	2
3 Possibiliy for Adaptation of Proposed Transshipping Method (presence of transshipment, employment ratio of local transporters, presence of transporters cooperative)	2	5	5	5	1	2	2
4 Beneficiaries (owner farmers ratio, no. of beneficiaries, illiteracy ratio)	4	7	4	1	4	1	1
7 Project Evaluation (economic/financial reliabilities, income redistribution)	5	7	5	1	3	1	4
2 Possibility for Organizing Farmers (farmers intention to participate in cooperative collection/distribution, presence of current farmers cooperative activities, presence of current water management association)	2	2	2	2	2	2	1
8 Effective Technology Transfer to the related persons	5	1	2	2	2	5	5
6 Environmental Impact Assessment (social impact to the related persons, environmental impact)	1	1	1	1	1	1	1
5 Site Condition (accessibility to C/D Center from farms, existing facilities available for C/D Center, reliability of land acquisition, necessity of large scale land preparation, infrastructure condition)	1	5	7	2	4	5	3

1st Group :
* high potential for production/supply volume / * high possibility for adaptation of transshipping method / * high (comparative high) beneficiaries

3rd Group
* low potential for production/supply volume
* high possibility for adaptation of transshipping method
* low beneficiaries

4th Group
* low potential for production/supply volume
* low possibility for adaptation of transshipping method
* low beneficiaries

2nd Group
* high potential for production/supply volume
* low possibility for adaptation of transshipping method
* high-medium beneficiaries

Remark :

The numbers showed in this table indicate each target area's ranking considering 7 target areas for each Criteria. Therefore the lesser the number becomes, the more positive evaluation the target area gets in the Criteria.

Table 3-8 ESTIMATION OF POPULATION INCREASE

	1997	2000	2005	2010
Dept. Santa Cruz	1,651951	1,813,029	2,052,492	2,396,778
Prov. A. Ibanez	1,009,379	1,145,268	1,393,396	1,654,917
City Santa Cruz	912,781	1,035,665	1,211,582	1,438,979

Table 3-9 SUPPLY/DEMAND OF VEGETABLE AND FRUIT (2000)

(Unit: 1,000 tons)

	Supply			*Demand*			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D balance
Valley	117	0	117	21	17	38	+79
Low land	362	0	362	210	80	290	+72
Import	-	13	13	-	-	-	+13
SC City	-	161	161	325	-	325	-164
Total	479	174	653	556	97	653	0

Table 3-10 SUPPLY/DEMAND OF VEGETABLES AND FRUIT (2005)

(Unit: 1,000 tons)

	Supply			*Demand*			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	127	0	127	21	22	43	+84
Low land	380	0	380	203	77	280	+100
Import	0	15	15	-	-	-	+15
SC City	0	181	181	380	-	380	-199
Total	507	196	703	604	99	703	0

Table 3-11 SUPPLY/DEMAND OF VEGETABLE AND FRUIT (2010)

(Unit: 1,000 tons)

	Supply			*Demand*			
	Production	Inflow	Total	Consumption	Outflow	Total	S/D Balance
Valley	145	0	145	21	31	52	+93
Low land	418	0	418	213	86	299	+119
Import	0	17	17	-	-	-	+17
SC City	0	222	222	451	-	451	-229
Total	563	239	802	685	117	802	0

Table 3-12 ORIGIN/DESTINATION OF VEGETABLE AND FRUIT (2000)

(Unit: 1,000 tons)

	Valley	*Low land*	*SC City*	*Sub-total*	*Outside SC*	*Export*	*Total*
Valley	21	0	79	100	17	0	117
Low land	0	210	72	282	80	0	362
SC City	0	0	0	0	0	0	0
Sub-total	21	210	151	382	97	0	479
Outside SC	0	0	161	161	-	0	174
Import	0	0	13	13	0	-	13
Total	21	210	325	569	97	0	666

Table 3-13 ORIGIN/DESTINATION OF VEGETABLE AND FRUIT (2005)

(Unit: 1,000 tons)

	Valley	*Low land*	*SC City*	*Sub-total*	*Outside SC*	*Export*	*Total*
Valley	21	0	84	105	22	0	127
Low land	0	203	100	303	77	0	380
SC City	0	0	0	0	0	0	0
Sub-total	21	203	184	408	99	0	507
Outside SC	0	0	181	181	-	0	181
Import	0	0	15	15	0	-	15
Total	21	203	380	604	99	0	703

Table 3-14 **ORIGIN/DESTINATION OF VEGETABLE AND FRUIT (2010)**

(Unit: 1,000 tons)

	Valley	*Low land*	*SC City*	*Sub-total*	*Outside SC*	*Export*	*Total*
Valley	21	0	93	114	31	0	145
Low land	0	213	119	332	86	0	418
SC City	0	0	0	0	0	0	0
Sub-total	21	213	212	446	117	0	563
Outside SC	0	0	222	222	-	0	222
Import	0	0	17	17	0	-	17
	21	213	451	685	117	0	802

Table 3-15 ESTIMATION OF MARKETING VOLUME IN THE NEW WHOLESALE MARKET

(Unit:1,000 tons)

Year	*Total marketing Volume (A)*	*Diect Marketing (B)*	*Through Wholesale Market (A) - (B)*	*New Wholesale Market*	
				(61%)	*(70%)*
2000	325	32	293	178	205
2005	380	38	342	209	239
2010	451	45	406	248	284

Table 3-16 PROJECTED MARKETING VOLUME OF FRUITS AND VEGETABLES IN 2005 USING EXISTING TRADING RATIOS OF ABASTO MARKET

Unit: 10^3 tons/year

Product	Wholesale Market					Abasto Market					Sub	Other Market					Grand
	V	L	O	I	total	V	L	O	I	total	total	V	L	O	I	total	Total
P	13	9	33	15	70	7	6	0	0	13	83	0	0	0	0	0	83
T	24	5	27	0	56	6	11	0	0	17	73	0	0	0	0	0	73
V	18	2	26	0	46	11	1	0	0	12	58	0	0	0	0	0	58
B	0	26	3	0	29	0	16	0	0	16	45	0	13	0	0	13	58
F	4	1	3	0	8	1	7	67	0	75	83	0	3	22	0	25	108
Total	59	43	92	15	209	25	41	67	0	133	342	0	16	22	0	38	380

Unit: 10^3 tons/year

Product	Valley	Low land	Outside dept.	Import	Total
P	20	15	33	15	83
T	30	16	27	0	73
V	29	3	26	0	58
B	0	55	3	0	58
F	5	11	92	0	108
Total	84	100	181	15	380

Remarks: (1) P: Potato, T: Tomato, V: Other Vegetables
B: Banana, F: Other Fruits
(2) V: Valley Area, L: Lowland, O: Outside Department S.C.
I : Import
(3) Existing share of wholesale trade in Abasto Market for total inflow volume to Santa Cruz excluding volume not through Abasto market and New Wholesale Market is 61%.

Source: Field Survey of Phase II of Feasibility Study for the Improvement of the Agricultural Marketing System in Santa Cruz, Bolivia, 1998

Table 3-17 PROJECTED MARKETINGVOLUME OF FRUITS AND VEGETABLESIN 2010 USING EXISTINGTRADING RATIOS OF ABASTO MARKET

Unit: 10^3 tons/year

Product	Wholesale Market					Abasto Market					Sub	Other Market					Grand
	V	L	O	I	total	V	L	O	I	total	total	V	L	O	I	total	Total
P	14	11	40	17	82	8	7	0	0	15	97	0	0	0	0	0	97
T	25	7	33	0	65	8	12	0	0	20	85	0	0	0	0	0	85
V	20	2	32	0	54	12	2	0	0	14	68	0	0	0	0	0	68
B	0	31	4	0	35	0	19	0	0	19	54	0	15	0	0	15	69
F	4	1	11	0	16	2	9	75	0	86	102	0	3	27	0	30	132
Total	63	52	120	17	252	30	49	75	0	154	406	0	18	27	0	45	451

Unit: 10^3 tons/year

Product	Valley	Low land	Outside dept.	Import	Total
P	22	18	40	17	97
T	33	19	33	0	85
V	32	4	32	0	68
B	0	65	4	0	69
F	6	13	113	0	132
Total	93	119	222	17	451

Remarks:
(1) P: Potato, T: Tomato, V: Other Vegetables
B: Banana, F: Other Fruits
(2) V: Valley Area, L: Lowland, O: Outside Department S.C.
I : Import
(3) Existing share of wholesale trade in Abasto Market for total inflow volume to Santa Cruz excluding volume not through Abasto market and New Wholesale Market is 61%.

Source: Field Survey of Phase II of Feasibility Study for the Improvement of the Agricultural Marketing System in Santa Cruz, Bolivia, 1998

Table 3-18 PROJECTED MARKETINGVOLUME OF FRUITS AND VEGETABLESIN 2005 USING PROJECTED TRADING RATIOS OF ABASTO MARKET

Unit: 10^3 tons/year

Product	Wholesale Market					Abasto Market					Sub	Other Market					Grand
	V	L	O	I	total	V	L	O	I	total	total	V	L	O	I	total	Total
P	13	9	33	15	70	7	6	0	0	13	83	0	0	0	0	0	83
T	24	5	27	0	56	6	11	0	0	17	73	0	0	0	0	0	73
V	18	2	26	0	46	11	1	0	0	12	58	0	0	0	0	0	58
B	0	26	3	0	29	0	16	0	0	16	45	0	13	0	0	13	58
F	4	1	33	0	38	1	7	37	0	45	83	0	3	22	0	25	108
Total	59	43	122	15	239	25	41	37	0	103	342	0	16	22	0	38	380

Unit: 10^3 tons/year

Product	Valley	Low land	Outside dept.	Import	Total
P	20	15	33	15	83
T	30	16	27	0	73
V	29	3	26	0	58
B	0	55	3	0	58
F	5	11	92	0	108
Total	84	100	181	15	380

Remarks: (1) P: Potato, T: Tomato, V: Other Vegetables
B: Banana, F: Other Fruits
(2) V: Valley Area, L: Lowland, O: Outside Department S.C.
I : Import
(3) Share of wholesale trade after introductionof New Wholesale Market for total inflow volume to Santa Cruz excluding volume not through Abasto market and New Wholesale Market is 70%.

Source: Field Survey of Phase II of Feasibility Study for the Improvement of the Agricultural Marketing System in Santa Cruz, Bolivia, 1998

Table 3-19 PROJECTED MARKETINGVOLUME OF FRUITS AND VEGETABLESIN 2010 USING PROJECTED TRADING RATIOS OF ABASTO MARKET

Unit: 10^3 tons/year

Product	Wholesale Market					Abasto Market					Sub	Other Market					Grand
	V	L	O	I	total	V	L	O	I	total	total	V	L	O	I	total	Total
P	14	11	40	17	82	8	7	0	0	15	97	0	0	0	0	0	97
T	25	7	33	0	65	8	12	0	0	20	85	0	0	0	0	0	85
V	20	2	32	0	54	12	2	0	0	14	68	0	0	0	0	0	68
B	0	31	4	0	35	0	19	0	0	19	54	0	15	0	0	15	69
F	4	1	43	0	48	2	9	43	0	54	102	0	3	27	0	30	132
Total	63	52	152	17	284	30	49	43	0	122	406	0	18	27	0	45	451

Unit: 10^3 tons/year

Product	Valley	Low land	Outside dept.	Import	Total
P	22	18	40	17	97
T	33	19	33	0	85
V	32	4	32	0	68
B	0	65	4	0	69
F	6	13	113	0	132
Total	93	119	222	17	451

Remarks: (1) P: Potato, T: Tomato, V: Other Vegetables
B: Banana, F: Other Fruits
(2) V: Valley Area, L: Lowland, O: Outside Department S.C.
I : Import
(3) Share of wholesale trade after introductionof New Wholesale Market for total inflow volume to Santa Cruz excluding volume not through Abasto market and New Wholesale Market is 70%.

Source: Field Survey of Phase II of Feasibility Study for the Improvement of the Agricultural Marketing System in Santa Cruz, Bolivia, 1998