

APPENDIX TO

CHAPTER 6

Appendix 6.4 Table of Break Down Cost

Akmola Airport Project Cost Estimation (Break Down, 2005 year)

KZT/US\$ = 70.3

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
I Compensation								
1) Land acquisition	ha	12.30		500,000	0	6,150	87	6,150
2) Noise pollution	ls	0			0	0	0	0
Subtotal					0	6,150	87	6,150
II Civil Work								
1 Airside								
1) Earthwork								
Excavation	m3	163,103	4.00	310	652	50,562	1,372	96,427
Embankment	m3	81,552	2.00	145	163	11,825	331	23,291
Demolition	m3	73,509	2.00	145	147	10,659	299	20,994
Stripping	m2	441,569	2.00	145	883	64,028	1,794	126,112
Sodding	m2	200,000	4.00	400	800	80,000	1,938	136,240
Subtotal					2,646	217,073	5,753	403,064
2) Pavement Work								
Runway extension	m2	50,355	39.56	1,854	1,992	93,352	3,320	233,379
Extension of R/W S/d & Overrun	m2	42,335	30.11	18	1,275	765	1,286	90,371
R/W overlay on flexible pave.	m2	14,700	17.75	832	261	12,229	435	30,572
R/W overlay on rigid pave.	m2	110,740	17.75	832	1,966	92,125	5,276	230,306
T/W expansion	m2	10,950	39.56	1,854	433	20,300	722	50,750
Taxiway overlay	m2	39,420	17.75	832	700	32,793	1,166	81,982
Taxiway Shoulder Expansion	m2	52,850	30.11	18,06	989	593	997	70,124
Apron overlay	m2	72,900	17.75	832	1,294	60,644	2,157	151,610
AP expansion	m2	2,000	39.56	1,854	79	3,708	132	9,269
GSE Road	m2	10,125	7.93	2,625	80	26,558	458	32,202
Perimeter Road	m2	63,180	7.93	2,625	501	165,721	2,858	200,943
Subtotal					9,569	508,785	16,807	1,181,509
3) Miscellaneous								
Marking	m2	16,275	0.67	24	11	391	16	391
Cable Duct 12 nos	m	120	541.22	25,365	65	3,044	108	3,045
Cable Duct 8 nos	m	310	343.40	16,094	106	4,989	177	4,992
Manhole C-type	nos	20	2,748.98	128,835	55	2,577	92	2,578
Manhole D-type	nos	4	3,933.96	184,372	16	737	26	738
Subtotal					253	11,738	420	11,744
Airside Total					12,468	757,596	22,960	1,596,317
2 Landside								
1) Earth Works								
Demolition	m3	3,534	4.00	310	14	1,096	30	2,089
Excavation	m3	17,670	2.00	145	35	2,562	72	5,047
Stripping		60,000	2.00	145	120	8,700	244	17,136
Sodding		40,000	2.00	145	80	5,800	163	11,424
Subtotal					249	18,158	508	35,696
2) Pavement Work								
Road & Carpark	m2	58,900	7.93	2,625.00	467	154,495	2,665	187,330
3) Miscellaneous								
Marking & Traffic Sign Board	ls	1			6	24	6	446
Fence	m	12,800	0.80	1,462	10	18,714	276	19,433
Landscaping	m2	60,000	0.6	2.4	36	144	38	2,675
Subtotal					52	18,882	321	22,554

Landside Total		769	191,534	5,493	245,580		
Civil Total		13,237	929,130	26,453	1,841,897		
III Architectural Works							
1	Passenger Terminal Building	m2	22,600	1,100.00	63,270	45,200	3,177,560
2	Cargo Terminal Building	m2	1,890	825.00	47,453	2,835	199,301
3	Administration Building	m2	4,000	962.50	55,361	7,000	492,100
4	Control Tower and navigation office	m2	1,500	1,100.00	63,270	5,000	210,900
5	Fire Station	m2	1,500	962.50	55,361	2,625	184,538
6	Main Power Station for building	m2	600	825.00	47,453	900	63,270
7	Main Power Station for Navigation	m2	300	1,100.00	63,270	600	42,180
8	Boiler Station and cooling station	m2	350	825.00	47,453	525	36,908
9	Airline office and pilot training center	m2	500	962.50	55,361	875	61,513
10	Incinerator	m2	0	825.00	47,453	0	0
11	Hangar	m2	0	1,575.00	79,088	0	0
12	Radar Station	m2	100	660.00	37,962	120	8,436
13	Airport Maintenance Bldg. and garage	m2	450	550.00	31,635	450	31,635
14	VIP terminal building	m2	450	1,100.00	63,270	900	63,270
15	GSE maintenance workshop	m2	100	550.00	31,635	100	7,030
16	Other building	m2	500	687.50	39,544	625	43,938
Total Architectural Work			36,165	2,080,159	65,755	4,622,577	
IV Air Navigation Systems							
1	Air Navigation System	l.s	1		6,282	49,073	6,981
2	Airfield Lighting	l.s	1		10,501	316,387	15,002
3	Communication System	l.s	1		2,408	18,813	2,576
4	Metereological Observation System	l.s	1		1,300	10,153	1,444
Total Air Navigation System			20,492	394,427	26,103	1,835,017	
VI Supporting Facilities							
1	Power Supply	l.s	1		2,804	21,899	3,115
2	Road & Car park Lighting	l.s	1		119	933	133
3	Sanitary works	km	2,000	37.86	18,625	76	606
	Sewerage System	km	2,500	57.6	7,160	144	399
	Solid Waste Disposal	l.s	0		0	0	0
Sub-total					220	55,150	1,004
4	Communication System	l.s	1		13	3	13
5	Air-conditioning & heating system	l.s	1		2,083	97,626	3,472
	Energy supplying equipment	l.s	1		1,477	69,205	2,461
	Air-conditioning equipment	l.s	1		1,269	59,475	2,115
	Air-circulation equipment & duct	l.s	1		467	21,899	779
	Indoor piping	l.s	1		1,062	49,770	1,770
	Central auto-control system	l.s	1		5,257	246,361	8,761
	Outdoor	l.s	1		11,615	544,336	19,358
Sub-total					5,310	3,540	5,360
6	Fuel Supply System	l.s	1		20,080	625,861	28,982
Total Supporting Facilities							2,037,454

KZT/US\$ = 70.3									
Akmola Airport Project Cost Estimation (Break Down, 2005 year)									
Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount		
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1,000	KZT 1,000	
VII Special Equipment									
1 Conveying System	no	1	101	792	101	792	113	7,923	
Dep. Baggage Conveyor	no	14	16	128	229	1,785	254	17,853	
Weighing Scale	no	4	166	1,300	666	5,200	740	51,996	
Arr. Baggage Conveyor	no	30			30	233	33	2,333	
Spare Parts					1,026	8,011	1,139	80,105	
Subtotal					146	1,140	162	11,395	
2 Elevator & escalator	no	2	128	1,002	257	2,004	285	20,038	
Elevator	no	3	49	380	12	94	13	94	
Escalator	no				414	3,238	461	31,528	
Spare Parts					11	82	12	822	
Subtotal					3	22	3	223	
3 Cold Storage	no	2	28	221	56	441	63	4,412	
Refrigerator	no	1	11	82	2	16	2	164	
Freezer Room	no	1	3	22	72	562	80	5,621	
Cargo Weighing Scale	no	2	28	221	1,195	9,332	1,327	93,319	
Spare Parts					38	297	42	2,973	
Subtotal					1,233	9,629	1,370	96,292	
4 Boarding Bridge	no	2	597	4,666	1,195	9,332	1,327	93,319	
Spare Parts					105	817	116	8,167	
Subtotal					3,590	28,041	3,989	280,413	
5 Fire Fighting Car	no	3	919	7,181	2,758	21,543	3,064	215,430	
Major Vehicle	no	1	666	5,200	666	5,200	740	52,000	
Rapid Intervention	no	1	33	261	33	261	37	2,614	
Ambulance	no	1	28	220	28	220	31	2,201	
Command Car	no	1			105	817	116	8,167	
Spare Parts	l.s				3,590	28,041	3,989	280,413	
Subtotal					164	1,279	182	12,791	
Maintenance Equipment	no	3	15.29	119	46	358	51	3,583	
Grader 3.1m wide	no	4	1.91	15	8	60	8	597	
Sewage pump	no	2	36.20	283	72	566	80	5,655	
Storm water drainage pump	no	2	11.01	86	22	172	24	1,720	
Snow plow	no	2	5.42	42	11	85	12	846	
Lawn mower	no	1	92.11	719	92	719	102	7,195	
Grass plow	no				415	3,239	461	32,388	
Road sweeper	no				6,749	52,719	7,499	526,346	
Subtotal									
Total Special Equipment									

VI General Preliminary									
1	Insurance	1s	1	967	40,823	1,548	108,819		
2	Mobil/ Demobilization	1s	1	2,902	122,469	4,644	326,458		
3	Site Establishment	1s	1	1,934	81,646	3,096	217,638		
4	Site Establishment (Office)	1s	1	677	28,576	1,084	76,173		
	Employers' Housing	1s	1	967	40,823	1,548	108,819		
	Vehicle	1s	1	354	6,221	442	31,106		
5	Temporary works	1s	1	2,418	102,057	3,870	272,048		
6	Soil investigation	1s	1	35	3,733	88	6,221		
7	Training	1s	1	119	0	119	8,336		
8	Miniature Model	1s	1	15	2,461	50	3,515		
9	Site management cost	1s	1	7,738	326,584	12,383	870,554		
Total of General and Preliminary				18,127	755,392	28,872	2,029,688		

Almaty Airport Project Cost Estimation (Break Down, 2005 year) KZT/US\$ = 70.3

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1,000	KZT 1,000
I Compensation								
1) Land Acquisition	m2	0			0	0	0	0
2) Noise pollution	l.s	1			0	28,120	400	28,120
Sub total					0	28,120	400	28,120
II Civil Work								
1) Airside								
1) Earthwork								
Excavation	m3	126,250	7.81	235	986	29,694	1,408	98,980
Embankment	m3	10,500	1.36	56	14	583	25	1,586
Demolition	m3	0	7.08	213	0	0	0	0
Stripping	m3	190,160	1.52	23	289	4,412	352	24,721
Sodding	m3	19,920	0.23	11	5	215	8	538
Subtotal					1,293	34,903	1,790	125,824
2) Pavement Work								
Runway extension	m2	0	40.05	1,877	0	0	0	0
Extension of R/W S/d & Overrun	m2	0	31.14	18.69	0	0	0	0
R/W overlay on flexible pave.	m2	0	22.37	1,048	0	0	0	0
R/W overlay on rigid pave.	m2	271,200	22.57	1,048	6,067	284,349	10,112	710,873
T/W expansion	m2	121,550	40.05	1,877	4,868	228,168	8,114	570,420
Taxiway overlay	m2	41,400	18.67	875	773	36,217	1,288	90,543
Taxiway Shoulder Expansion	m2	40,500	31.14	18.69	1,261	757	1,272	89,425
Apron expansion	m2	0	22.37	1,048	0	0	0	0
A/P overlay	m2	177,500	18.67	875	3,313	155,279	5,522	388,199
GSE Road	m2	0	8.36	2,715	0	0	0	0
Perimeter Road	m2	37,000	8.36	2,715	309	100,455	1,738	122,200
Subtotal					16,592	805,226	28,046	1,971,658
3) Miscellaneous								
Marking	m2	22,763	0.67	24	15	546	23	547
Cable Duct 12nos	m	60	541.22	25,365	32	1,522	54	1,523
Cable Duct 8 nos	m	700	343.40	16,094	240	11,266	401	11,271
Manhole C-type	nos	20	2,748.98	128,835	55	2,577	92	2,578
Manhole D-type	nos	4	3,933.96	184,372	16	737	26	738
Pipe culvert	m	500	149.09	6,987.36	75	3,494	124	3,495
Subtotal					433	20,142	720	20,152
Airside Total					18,319	860,271	30,556	2,117,634
2) Landside								
1) Earth Works								
Demolition	m3	27,300	7.08	213.30	193	5,823	276	19,410
Embankment	m3	105,000	1.36	55.50	143	5,828	226	15,855
Excavation	m3	21,294	7.81	235.20	166	5,008	237	16,694
Stripping	m2	60,000	1.52	23.20	91	1,392	111	7,800
Sodding	m2	40,000	0.23	10.80	9	432	15	1,080
Subtotal					603	18,483	865	60,840
2) Pavement Work								
Road & Carpark	m2	54,600	8.36	2,715.00	456	148,239	2,365	180,528
3) Miscellaneous								
Marking & Traffic Sign Board	l.s	1			6	24	6	446
Fence	m	0	0.80	1,462	0	0	0	0
Landscaping	m2	60,000	0.6	2.4	36	144	38	2,675

												42	168	44	3,121	
													1,101	166,890	3,475	244,288
												19,420	1,027,161	34,031	2,361,922	
III Architectural Works																
1	Passenger Terminal Building	m2	52,800	1,100.00	63,270	36,080	2,075,256	65,600	4,611,680							
2	Cargo Terminal Building	m2	0	825.00	47,453	0	0	0	0							
3	Administration Building	m2	4,000	962.50	55,361	3,850	221,445	7,000	492,100							
4	Control Tower and navigation office	m2	600	825.00	47,453	495	28,472	900	63,270							
5	Fire Station	m2	600	687.50	39,544	413	23,726	750	52,725							
6	Main Power Station for building	m2	0	825.00	47,453	0	0	0	0							
7	Main Power Station for Navigation	m2	600	825.00	47,453	495	28,472	900	63,270							
8	Boiler Station and cooling station	m2	0	825.00	47,453	0	0	0	0							
9	Airline office and pilot training center	m2	0	687.50	39,544	0	0	0	0							
10	Incinerator	m2	0	825.00	47,453	0	0	0	0							
11	Hangar	m2	0	1,375.00	79,088	0	0	0	0							
12	Radar Station	m2	100	962.50	55,361	96	5,536	175	12,303							
13	Airport Maintenance Bldg. and garage	m2	0	825.00	47,453	0	0	0	0							
14	VP terminal building	m2	0	1,100.00	63,270	0	0	0	0							
15	GSE maintenance workshop	m2	0	825.00	47,453	0	0	0	0							
16	Other building	m2	0	962.50	55,361	0	0	0	0							
	Total Architectural Work					41,429	2,382,906	75,325	5,295,348							
IV Air Navigation Systems																
1	Air Navigation System	1.s	1			6,576	51,363	7,306	519,625							
2	Airfield Lighting	1.s	1			14,862	447,780	21,252	1,492,600							
3	Communication System	1.s	1			2,408	18,813	2,676	188,130							
4	Meteorological Observation System	1.s	1			1,300	10,153	1,444	101,531							
	Total Air Navigation System					25,146	528,109	32,658	2,295,886							
V Supporting Facilities																
1	Power Supply	1.s	1			2,804	21,899	3,115	218,988							
2	Road & Car park Lighting	1.s	1			119	933	133	9,332							
3	Sanitary works	1.s	1			35	622	44	3,111							
	Water Supply System	1.s	1			57	995	71	4,977							
	Sewerage System	1.s	1			0	0	0	0							
	Solid Waste Disposal	1.s	0			92	1,618	115	8,088							
	Sub-total															
4	Communication System	1.s	0			0	0	0	0							
5	Airconditioning & heating system	1.s	0			0	0	0	0							
6	Fuel Supply System	1.s	0			0	0	0	0							
	Total Supporting Facilities					3,015	24,449	3,363	236,407							
VI Special Equipment																
1	Conveying System	no	2	101	792	203	1,583	225	15,845							
	Dep. Baggage Conveyer	no	30	16	128	490	3,826	544	38,257							
	Weighing Scale	no	5	166	1,300	832	6,500	925	64,995							
	Air. Baggage Conveyer	no				46	357	51	3,573							
	Spare Parts					1,570	12,267	1,745	122,671							
	Subtotal															

Almaty Airport Project Cost Estimation (Break Down, 2005 year)

Work Item

	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
2 Elevator & escalator	no	3	49	380	146	1,140	196	13,808
	no	2	128	1,002	257	2,004	345	24,281
					12	94	13	94
	Subtotal				414	3,238	555	38,183
3 Cold Storage	no	1	11	82	11	82	12	822
	no	1	3	22	3	22	3	223
	no	2	28	221	56	441	63	4,412
	Subtotal				2	16	2	164
4 Boarding Brdge	no	8	597	4,666	4,779	37,327	5,310	373,274
					146	1,137	162	11,372
					4,924	38,465	5,471	384,646
	Subtotal							
5 Fire Fighting Car	no	5	919	7,181	4,597	35,905	5,107	359,051
	no	1	666	5,200	666	5,200	740	52,000
	no	1	33	261	33	261	37	2,614
	Subtotal				28	220	31	2,201
Maintenance Equipment	no	1	28	220	28	220	31	2,201
	no	1	160	1,248	160	1,248	177	12,476
	no	1	5,484	42,834	5,484	42,834	6,093	428,342
	Subtotal				164	1,279	182	12,791
VII General Preliminary	no	2	81.88	640	164	1,279	182	12,791
	no	0	15.29	119	0	0	0	0
	no	0	1.91	15	0	0	0	0
	Subtotal				72	566	80	5,655
1 Insurance	no	2	36.20	283	72	566	80	5,655
	no	3	11.01	86	33	258	37	2,580
	no	2	5.42	42	11	85	12	846
	Subtotal				92	719	102	7,195
2 Mobil/ Demobilization	no	1	92.11	719	372	2,907	413	29,067
					12,837	100,272	14,358	1,008,529
	Subtotal							
3 Site Establishment	no	1	2,037	81,258	2,037	81,258	3,193	224,455
	no	1	1,018	40,629	1,018	40,629	1,596	112,227
	no	1	4,074	81,258	4,074	81,258	5,230	367,652
	Subtotal				611	24,377	958	67,536
4 Site Establishment (Office)	no	1	611	24,377	611	24,377	958	67,536
	no	1	611	24,377	611	24,377	958	67,536
	no	1	354	6,221	354	6,221	442	31,106
	Subtotal				4,074	162,516	6,386	448,910
5 Temporary works	no	1	18	1,866	18	1,866	44	3,111
	no	1	119	0	119	0	119	8,336
	no	1	15	2,461	15	2,461	50	3,515
	Subtotal				8,148	650,064	17,395	1,222,851
6 Soil investigation	no	1	21,078	1,075,027	21,078	1,075,027	36,370	2,556,836
	Subtotal							
7 Training	no	1	15	2,461	15	2,461	50	3,515
	no	1	8,148	650,064	8,148	650,064	17,395	1,222,851
	no	1	21,078	1,075,027	21,078	1,075,027	36,370	2,556,836
	Subtotal							
8 Miniature Model	no	1	15	2,461	15	2,461	50	3,515
	no	1	8,148	650,064	8,148	650,064	17,395	1,222,851
	no	1	21,078	1,075,027	21,078	1,075,027	36,370	2,556,836
	Subtotal							
9 Site management cost	no	1	15	2,461	15	2,461	50	3,515
	no	1	8,148	650,064	8,148	650,064	17,395	1,222,851
	no	1	21,078	1,075,027	21,078	1,075,027	36,370	2,556,836
	Subtotal							
Total of General and Preliminary								

Aktau Airport Project Cost Estimation (Break Down 2005 year)

KZT/US\$ = 70.3

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1,000	KZT 1,000
I Civil Work								
1) Airside								
1) Earthwork								
Excavation	m3	36,480	7.81	235	285	8,580	407	28,600
Embankment	m3	18,240	1.36	56	25	1,012	39	2,754
Demolition	m3	0	7.08	213	0	0	0	0
Stripping	m3	0	1.52	23	0	0	0	0
Sodding	m3	0	0.23	11	0	0	0	0
Subtotal					310	9,592	446	31,355
2) Pavement Work								
Runway extension	m2	0	40.05	1,877	0	0	0	0
Extension of R/W Sid & Overrun	m2	0	31.14	18,69	0	0	0	0
R/W overlay on flexible pave.	m2	0	22.37	1,048	0	0	0	0
R/W overlay on rigid pave.	m2	6,900	22.37	1,048	154	7,235	257	18,086
T/W expansion	m2	0	40.05	1,877	0	0	0	0
Taxiway overlay	m2	40,500	18.67	875	756	35,430	1,260	88,575
Taxiway Shoulder Expansion	m2	4,500	31.14	18,69	140	84	141	9,936
Apron expansion	m2	0	22.37	1,048	0	0	0	0
APF overlay	m2	15,413	18.67	875	288	13,483	479	33,708
GSE Road	m2	0	8.36	2,715	0	0	0	0
Perimeter Road	m2	1,420	8.36	2,715	12	3,854	67	4,689
Subtotal					1,350	60,086	2,205	154,993
3) Miscellaneous								
Marking	m2	7,098	0.67	24	5	170	7	170
Cable Duct 12 nos	m	0	541.22	25,365	0	0	0	0
Cable Duct 8 nos	m	0	343.40	16,094	0	0	0	0
Manhole C-type	nos	20	2,748.98	128,835	55	2,577	92	2,578
Manhole D-type	nos	4	3,933.96	184,372	16	737	26	738
Pipe culvert	m	0	149.09	6,987.36	0	0	0	0
Subtotal					75	3,485	125	3,486
Airside Total					1,735	73,163	2,776	189,834
2) Landside								
1) Earth Works								
Demolition	m3	0	7.08	213.30	0	0	0	0
Embankment	m3	0	1.36	55.50	0	0	0	0
Excavation	m3	0	7.81	235.20	0	0	0	0
Stripping	m2	30,000	1.52	23.20	46	696	55	3,900
Sodding	m2	20,000	0.23	10.80	5	216	8	540
Subtotal					50	912	63	4,440
2) Pavement Work								
Road & Carpark	m2	18,200	8.36	2,715.00	152	49,413	855	60,109
3) Miscellaneous								
Marking & Traffic Sign Board	ls	1		6	24		6	446
Fence	m	0	0.80	0.80	0	0	0	0
Landscaping	m2	20,000	0.6	2.4	12	48	13	892
Subtotal					18	72	19	1,337
Landside Total					220	50,397	937	65,887
Civil Total					1,955	123,560	3,713	255,721
II Architectural Works								
1) Passenger Terminal Building	m2	7,500	1,100.00	63,270	8,250	474,525	15,000	1,054,500
2) Cargo Terminal Building	m2	750	825.00	47,453	619	35,580	1,125	79,088
3) Administration Building	m2	1,500	962.50	55,361	1,444	83,042	2,625	184,538
4) Control Tower and navigation office	m2	900	1,100.00	63,270	990	56,943	1,800	126,540

5	Fire Station	m2	600	962.50	55,361	578	33,217	1,050	73,815
6	Main Power Station for building	m2	750	825.00	47,453	619	35,589	1,125	79,088
7	Main Power Station for Navigation	m2	300	1,100.00	63,270	330	18,981	600	42,180
8	Boiler Station and cooling station	m2	600	825.00	47,453	495	28,472	900	63,270
9	Airline office and pilot training center	m2	0	687.50	39,544	0	0	0	0
10	Incinerator	m2	0	825.00	47,453	0	0	0	0
11	Hangar	m2	0	1,375.00	79,088	0	0	0	0
12	Radar Station	m2	100	660.00	37,962	66	3,796	120	8,436
13	Airport Maintenance Bldg. and garage	m2	500	550.00	31,635	275	15,818	500	35,150
14	VP terminal building	m2	350	1,100.00	63,270	385	22,145	700	49,210
15	GSE maintenance workshop	m2	200	550.00	31,635	110	6,327	200	14,060
16	Other building	m2	1,405	687.50	39,544	966	55,559	1,756	123,464
Total Architectural Work						15,126	870,002	27,501	1,933,338
III Air Navigation Systems									
1	Air Navigation System	ls	1			6,282	49,073	6,981	490,731
2	Airfield Lighting	ls	1			6,928	208,735	9,897	695,783
3	Communication System	ls	1			2,408	18,813	2,676	188,130
4	Meteorological Observation System	ls	1			1,300	10,153	1,444	101,531
Total Air Navigation System						16,919	286,774	20,998	1,476,176
IV Supporting Facilities									
1	Power Supply	ls	1			1,816	14,184	2,018	141,844
2	Road & Car park Lighting	ls	1			398	3,111	442	31,106
3	Sanitary works	ls	1			35	622	44	3,111
	Water Supply System	ls	1			57	995	71	4,977
	Sewerage System	ls	0			0	0	0	0
	Solid Waste Disposal	ls	0			92	1,618	115	8,088
	Sub-total					13	3	13	884
4	Communication System	ls	1			9,204	161,752	11,504	161,916
5	Air-conditioning & heating system	ls	0			2,655	1,770	2,680	188,407
6	Fuel Supply System	ls	1			14,177	182,438	16,772	532,245
Total Supporting Facilities									
V Special Equipment									
1	Conveying System	no	1	101	792	101	792	113	7,923
	Dep. Baggage Conveyer	no	4	16	128	65	510	73	5,101
	Weighing Scale	no	2	166	1,300	333	2,600	370	25,998
	Arr. Baggage Conveyer	no	15			15	117	17	1,171
	Spare Parts					515	4,019	572	40,192
	Subtotal					146	1,140	162	11,395
2	Elevator & escalator	no	2	128	1,002	257	2,004	285	20,038
	Elevator	no	3	49	380	12	94	13	94
	Escalator	no	2	128	1,002	414	3,238	461	31,528
	Spare Parts					11	82	12	822
	Subtotal					3	22	3	223
3	Cold Storage	no	1	28	221	28	221	31	2,206
	Refrigerator	no	1	11	82	11	82	12	822
	Freezer Room	no	1	3	22	3	22	3	223
	Cargo Weighing Scale	no	1	28	221	28	221	31	2,206
	Spare Parts					1	10	1	98
	Subtotal					43	335	48	3,349
4	Boarding Bridge	no	2	597	4,666	1,195	9,332	1,327	93,319
	Spare Parts					37	290	41	2,903
	Subtotal					1,232	9,622	1,369	96,222

KZT/US\$ = 70.3

Aktau Airport Project Cost Estimation (Break Down 2005 year)

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1,000	KZT 1,000
5 Fire Fighting Car	no	3	919	7,181	2,758	21,543	3,064	215,430
Major Vehicle	no	1	666	5,200	666	5,200	740	52,000
Rapid Intervention	no	1	33	261	33	261	37	2,614
Ambulance	no	1	28	220	28	220	31	2,201
Command Car	1s	1			105	817	116	8,167
Spare Parts					3,590	28,041	3,989	280,413
Subtotal					164	1,279	182	12,791
Maintenance Equipment	no	0	15.29	119	0	0	0	0
Grader 3.1m wide	no	0	1.91	15	0	0	0	0
Sewage pump	no	0	36.20	283	72	566	80	5,655
Storm water drainage pump	no	0	11.01	86	0	0	0	0
Snow plow	no	0	5.42	42	0	0	0	0
Lawn mower	no	0	92.11	719	92	719	102	7,195
Grass plow	no	1			328	2,564	365	25,641
Road sweeper	no	1			6,122	47,819	6,802	477,344
Subtotal								
Total Special Equipment								
VI General Preliminary								
1 Insurance	1s	1			543	30,212	973	68,384
2 Mobil/Demobilization	1s	1			1,086	15,106	1,301	91,450
3 Site Establishment	1s	1			1,086	30,212	1,516	106,556
4 Site Establishment (Office)	1s	1			163	9,064	292	20,515
Employers Housing	1s	1			326	9,064	455	31,967
Vehicle	1s	1			354	6,221	442	31,106
5 Temporary works	1s	1			1,086	60,424	1,945	136,768
6 Soil investigation	1s	1			18	1,866	44	3,111
7 Training	1s	1			119	0	119	8,336
8 Miniature Model	1s	1			15	2,461	50	3,515
9 Site management cost	1s	1			4,344	241,695	7,782	547,073
Total of General and Preliminary					9,139	406,324	14,919	1,048,783

KZT/US\$ = 70.3

Akrybinsk Airport Project Cost Estimation (Break Down, 2005 year)

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
1 Civil Work								
1 Airside								
1) Earthwork								
Excavation	m3	13,212	7.81	235	103	3,107	147	10,358
Embankment	m3	6,606	1.36	56	9	367	14	998
Demolition	m3	0	7.08	213	0	0	0	0
Stripping	m3	14,410	1.52	23	22	334	27	1,873
Sodding	m3	7,715	0.23	11	2	83	3	208
Subtotal					136	3,892	191	13,437
2) Pavement Work								
Runway extension	m2	0	40.05	1,877	0	0	0	0
Extension of R/W S/d & Overrun	m2	3,600	31.14	18,69	112	67	113	7,949
R/W overlay on flexible pave.	m2	139,365	22.37	1,048	3,118	146,122	5,196	365,305
R/W overlay on rigid pave.	m2	0	22.37	1,048	0	0	0	0
T/W expansion	m2	1,937	40.05	1,877	78	3,636	129	9,090
Taxiway overlay	m2	19,370	18.67	875	362	16,945	603	42,363
Taxiway Shoulder Expansion	m2	8,873	31.14	18,69	276	166	279	19,590
Apron expansion	m2	0	22.37	1,048	0	0	0	0
A/P overlay	m2	90,000	18.67	875	1,680	78,733	2,800	196,833
GSE Road	m2	10,000	8.36	2,715	84	27,150	470	33,037
Perimeter Road	m2	0	8.36	2,715	0	0	0	0
Subtotal					5,709	272,820	9,590	674,157
3) Miscellaneous								
Marking	m2	15,413	0.67	24	10	370	16	370
Cable Duct 12nos	m	200	541.22	25,363	108	5,073	180	5,076
Cable Duct 8 nos	m	180	343.40	16,094	62	2,897	103	2,898
Manhole C-type	nos	12	2,748.98	128,835	33	1,546	55	1,547
Manhole D-type	nos	2	3,933.96	184,372	8	369	13	369
Pipe culvert	m	0	149.09	6,987.36	0	0	0	0
Subtotal					221	10,255	367	10,260
Airside Total					6,066	286,966	10,148	697,855
2 Landside								
1) Earth Works								
Demolition	m3	0	7.08	213.30	0	0	0	0
Embankment	m3	0	1.36	55.50	0	0	0	0
Excavation	m3	4,805	7.81	235.20	38	1,130	54	3,767
Stripping	m2	30,000	1.52	23.20	46	696	55	3,900
Sodding	m2	20,000	0.23	10.80	5	216	8	540
Subtotal					88	2,042	117	8,207
2) Pavement Work								
Road & Carpark	m2	12,320	8.36	2,715.00	103	33,449	579	40,689
3) Miscellaneous								
Marking & Traffic Sign Board	l.s.	1			6	24	6	446
Fence	m	0	0.80	1,462	0	0	0	0
Landscaping	m2	30,000	0.6	2.4	18	72	19	1,337
Subtotal					24	96	25	1,783
Landside Total					215	35,587	721	50,680
Civil Total					6,281	322,553	10,869	748,534

II Architectural Works												
1	Passenger Terminal Building	m2	3,550	1,100.00	63,270	3,905	224,609	7,100	499,130			
2	Cargo Terminal Building	m2	530	825.00	47,453	437	25,150	795	55,889			
3	Administration Building	m2	2,000	962.50	55,361	1,925	110,722	3,500	246,050			
4	Control Tower and navigation office	m2	400	1,100.00	63,270	440	25,308	800	56,240			
5	Fire Station	m2	1,050	962.50	55,361	1,011	58,129	1,838	129,176			
6	Main Power Station for building	m2	750	962.50	55,361	722	41,521	1,313	92,269			
7	Main Power Station for Navigation	m2	300	825.00	47,453	248	14,236	450	31,635			
8	Boiler Station and cooling station	m2	0	550.00	31,635	0	0	0	0			
9	Airline office and pilot training center	m2	1,000	687.50	39,544	688	39,544	1,250	87,875			
10	Incinerator	m2	0	825.00	47,453	0	0	0	0			
11	Hangar	m2	0	1,375.00	79,088	0	0	0	0			
12	Radar Station	m2	100	825.00	47,453	83	4,745	150	10,545			
13	Airport Maintenance Bldg. and garage	m2	300	687.50	39,544	206	11,863	375	26,363			
14	VIP terminal building	m2	0	1,100.00	63,270	0	0	0	0			
15	GSE maintenance workshop	m2	200	825.00	47,453	165	9,491	300	21,090			
16	Other building	m2	1,028	687.50	39,544	707	40,651	1,283	90,336			
Total Architectural Work							605,968	19,155	1,346,597			
III Air Navigation Systems												
1	Air Navigation System	l.s.	1			6,588	51,462	7,320	514,621			
2	Airfield Lighting	l.s.	1			7,553	227,548	10,789	758,493			
3	Communication System	l.s.	1			2,408	18,813	2,676	188,130			
4	Meteorological Observation System	l.s.	1			1,300	10,153	1,444	101,531			
Total Air Navigation System						17,849	307,976	22,230	1,562,775			
IV Supporting Facilities												
1	Power Supply	l.s.	1			1,816	14,184	2,018	141,844			
2	Road & Car park Lighting	l.s.	1			119	933	133	9,332			
3	Sanitary works	l.s.	1			354	6,221	442	31,106			
	Water Supply System	l.s.	1			85	1,493	106	7,465			
	Sewerage System	l.s.	1			0	0	0	0			
	Solid Waste Disposal	l.s.	0			0	0	0	0			
Sub-total						439	7,714	549	38,572			
4	Communication System	l.s.	1			1,253	313	1,257	88,402			
5	Airconditioning & heating system	l.s.	1			2,124	1,416	2,144	150,726			
6	Fuel Supply System	l.s.	0			0	0	0	0			
Total Supporting Facilities						5,751	24,561	6,101	428,875			
V Special Equipment												
1	Conveying System	no	1	101	792	101	792	113	7,925			
	Dep. Baggage Conveyor	no	8	16	128	131	1,020	145	10,202			
	Weighing Scale	no	2	166	1,300	393	2,600	370	25,998			
	Air. Baggage Conveyor	no	17	132	19	17	132	19	1,324			
	Spare Parts	Subtotal				582	4,545	646	45,446			
2	Elevator & escalator	no	3	49	380	146	1,140	162	11,395			
	Escalator	no	2	128	1,002	257	2,004	285	20,038			
	Spare Parts	no				12	94	13	94			
Subtotal						414	3,238	461	31,528			

Aktyubinsk Airport Project Cost Estimation (Break Down, 2005 year) KZT/US\$ = 70.3

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount		
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000	
3 Cold Storage	Refrigerator	no	1	11	82	11	82	12	822
	Freezer Room	no	1	3	22	3	22	3	223
	Cargo Weighing Scale	no	1	28	221	28	221	31	2,206
	Spare Parts		1			1	10	1	98
	Subtotal					43	335	48	3,349
4 Boarding Bridge		no	2	597	4,666	1,195	9,332	1,327	93,319
	Spare Parts				37	290	41	2,903	
					1,232	9,622	1,369	96,222	
5 Fire Fighting Car	Major Vehicle	no	3	919	7,181	2,758	21,543	3,064	215,430
	Rapid Intervention	no	1	666	5,200	666	5,200	740	52,000
	Ambulance	no	1	33	261	33	261	37	2,614
	Command Car	no	1	28	220	28	220	31	2,201
	Spare Parts	1s	1			105	817	116	8,167
	Subtotal					3,590	28,041	3,989	280,413
Maintenance Equipment	Grader 3.1m wide	no	2	81.88	640	164	1,279	182	12,791
	Sewage pump	no	0	15.29	119	0	0	0	0
	Storm water drainage pump	no	0	1.91	15	0	0	0	0
	Snow plow	no	2	36.20	283	72	566	80	5,655
	Lawn mower	no	3	11.01	86	33	258	37	2,580
	Grass plow	no	2	5.42	42	11	85	12	846
	Road sweeper	no	1	92.11	719	92	719	102	7,195
	Subtotal					372	2,907	413	29,067
	Total Special Equipment					6,233	48,687	6,926	486,025
	VI General Preliminary								
1 Insurance	1s	1				933	26,195	1,306	91,784
2 Mobil/ Demobilization	1s	1				466	13,097	653	45,892
3 Site Establishment	1s	1				1,866	26,195	2,239	157,373
4 Site Establishment (Office)	1s	1				280	7,858	392	27,535
Employers' Housing	1s	1				280	7,858	392	27,535
Vehicle	1s	1				354	6,221	442	31,106
5 Temporary works	1s	1				1,866	52,390	2,611	183,568
6 Soil investigation	1s	1				18	1,866	44	3,111
7 Training	1s	1				119	0	119	8,336
8 Miniature Model	1s	1				15	2,461	50	3,515
9 Site management cost	1s	1				3,732	209,559	6,713	471,916
Total of General and Preliminary						9,928	353,702	14,960	1,051,672

Atyrau Airport Project Cost Estimation (Break Down, 2005 year)

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
I Compensation								
1) Land acquisition	ha	0		50,000	0	0	0	0
2) Noise pollution	l.s	0			0	0	0	0
Subtotal					0	0	0	0
II Civil Work								
1) Airside								
1) Earthwork								
Excavation	m3	34,986	4.00	310	140	10,846	294	20,684
Embankment	m3	17,493	2.00	145	35	2,536	71	4,996
Demolition	m3	0	2.00	145	0	0	0	0
Stripping	m3	69,400	2.00	145	139	10,063	282	19,821
Sodding	m3	0	4.00	400	0	0	0	0
Subtotal					314	23,445	647	45,500
2) Pavement Work								
Runway extension	m2	0	39.56	1,854	0	0	0	0
Extension of R/W S/d & Overrun	m2	43,600	30.11	18,061	1,313	788	1,324	93,071
R/W overlay on flexible pave.	m2	0	17.75	832	0	0	0	0
R/W overlay on rigid pave.	m2	103,400	17.75	832	1,835	86,017	3,059	215,041
T/W expansion	m2	4,800	39.56	1,854	190	8,899	316	22,246
Taxiway overlay	m2	7,200	17.75	832	128	5,990	213	14,974
Taxiway Shoulder Expansion	m2	6,000	30.11	18,061	181	108	182	12,808
Apron overlay	m2	15,000	17.75	832	266	12,478	444	31,196
A/P expansion	m2	32,400	39.56	1,854	1,282	60,065	2,136	150,164
GSE Road	m2	0	7.93	2,623	0	0	0	0
Perimeter Road	m2	0	7.93	2,623	0	0	0	0
Subtotal					5,194	174,344	7,674	539,500
3) Miscellaneous								
Marking	m2	16,275	0.67	24	11	391	16	391
Cable Duct 12 nos	m	200	541.22	25,365	108	5,073	180	5,076
Cable Duct 8 nos	m	120	343.40	16,094	41	1,931	69	1,932
Manhole C-type	nos	14	2,748.98	128,835	38	1,804	64	1,805
Manhole D-type	nos	2	3,933.96	184,372	8	369	13	369
Subtotal					207	9,567	343	9,572
Airside Total					5,715	207,357	8,664	594,573
2) Landside								
1) Earth Works								
Demolition	m3	1,170	4.00	310	5	363	10	692
Excavation	m3	5,850	2.00	145	12	848	24	1,671
Stripping		19,500	2.00	145	39	2,828	79	5,569
Sodding		0	2.00	145	0	0	0	0
Subtotal					55	4,038	113	7,932
2) Pavement Work								
Road & Carpark	m2	19,500	7.93	2,623.00	155	51,149	882	62,019
3) Miscellaneous								
Marking & Traffic Sign Board	l.s	1			6	24	6	446
Fence	m	0	0.80	1,462	0	0	0	0
Landscaping	m2	0	0.6	2.4	0	0	0	0
Subtotal					6	24	6	446

Landside Total		216	55,211	1,001	70,397				
Civil Total		5,931	262,568	9,666	664,970				
III Architectural Works									
1	Passenger Terminal Building	m2	5,900	1,100.00	63,270	6,490	373,293	11,800	829,540
2	Cargo Terminal Building	m2	610	825.00	47,453	503	28,946	915	64,325
3	Administration Building	m2	3,000	962.50	55,361	2,888	166,084	5,250	369,075
4	Control Tower and navigation office	m2	1,000	1,100.00	63,270	1,100	63,270	2,000	140,600
5	Fire Station	m2	450	962.50	55,361	433	24,913	788	55,361
6	Main Power Station for building	m2	750	825.00	47,453	619	35,589	1,125	79,088
7	Main Power Station for Navigation	m2	300	825.00	47,453	248	14,236	450	31,635
8	Boiler Station and cooling station	m2	350	825.00	47,453	289	16,608	525	36,908
9	Airline office and pilot training center	m2	1,000	1,100.00	63,270	1,100	63,270	2,000	140,600
10	Incinerator	m2	0	825.00	47,453	0	0	0	0
11	Hangar	m2	0	1,375.00	79,088	0	0	0	0
12	Radar Station	m2	100	825.00	47,453	83	4,745	150	10,545
13	Airport Maintenance Bldg. and garage	m2	450	962.50	55,361	433	24,913	788	55,361
14	VP terminal building	m2	350	1,100.00	63,270	385	22,145	700	49,210
15	GSE maintenance workshop	m2	100	550.00	31,635	55	3,164	100	7,030
16	Other building	m2	287	687.50	39,544	197	11,357	359	25,238
Total Architectural Work						14,822	852,532	26,949	1,894,515
IV Air Navigation Systems									
1	Air Navigation System	1.s	1			6,282	49,073	6,981	490,731
2	Airfield Lighting	1.s	1			6,730	202,763	9,614	675,875
3	Communication System	1.s	1			2,408	18,813	2,676	188,130
4	Meteorological Observation System	1.s	1			1,300	10,153	1,444	101,531
Total Air Navigation System						16,721	280,802	20,715	1,456,268
VI Supporting Facilities									
1	Power Supply	1.s	1			1,816	14,184	2,018	141,844
2	Road & Car park Lighting	1.s	1			119	933	133	9,332
3	Sanitary works	km	1			398	3,111	442	31,106
	Water Supply System	km	1			159	1,244	177	12,442
	Sewerage System	km	1			0	0	0	0
	Solid Waste Disposal	1.s	0			0	0	0	0
Sub-total						558	4,355	619	43,549
4	Communication System	1.s	1			1,416	354	1,421	99,894
5	Air-conditioning & heating system	1.s	1			1,416	354	1,421	99,894
	Producing energy system	1.s	1			991	248	995	69,926
	Air handling unit, heater unit	1.s	1			1,133	283	1,137	79,915
	Air circulating fan & ducer	1.s	1			1,062	265	1,066	74,920
	Central control, surveillance system	1.s	1			4,673	1,168	4,689	329,650
	Areal energy supplying system	1.s	1			9,274	2,319	9,307	484,485
Sub-total						0	0	0	0
6	Fuel Supply System	1.s	0			13,183	22,145	13,498	779,104
Total Supporting Facilities						13,183	22,145	13,498	779,104

Avrau Airport Project Cost Estimation (Break Down, 2005 year) KZT/US\$ = 70.3

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
1 Conveying System	no	1	101	792	101	792	113	7,923
	no	8	16	128	131	1,020	145	10,202
	no	2	166	1,300	333	2,600	370	25,998
					17	132	19	1,324
					582	4,545	646	45,446
2 Elevator & escalator	no	3	49	380	146	1,140	162	11,383
	no	2	128	1,002	257	2,004	285	20,017
					12	94	13	94
				414	3,238	460	31,494	
3 Cold Storage	no	1	11	82	11	82	12	822
	no	1	3	22	3	22	3	223
	no	1	28	221	28	221	31	2,206
					1	10	1	98
					43	335	48	3,349
4 Boarding Bridge	no	2	597	4,666	1,195	9,332	1,327	93,319
					37	290	41	2,903
				1,232	9,622	1,369	96,222	
5 Fire Fighting Car	no	3	919	7,181	2,758	21,543	3,064	215,430
	no	1	666	5,200	666	5,200	740	52,000
	no	1	33	261	33	261	37	2,614
	no	1	28	220	28	220	31	2,201
					105	817	116	8,167
					3,590	28,041	3,989	280,413
Maintenance Equipment	no	2	81,88	640	164	1,279	182	12,791
	no	0	15,29	119	0	0	0	0
	no	0	1,91	15	0	0	0	0
	no	2	36,20	283	72	566	80	5,655
	no	1	11,01	86	11	86	12	860
	no	1	5,42	42	5	42	6	423
				92	719	102	7,195	
				345	2,692	383	26,924	
				6,206	48,473	6,895	483,548	
Total Special Equipment								

VI General Preliminary									
1	Insurance	1s	1	1,137	29,330	1,554	109,279		
2	Mobil/ Demobilization	1s	1	1,706	43,996	2,332	163,918		
3	Site Establishment	1s	1	1,706	58,661	2,540	178,583		
4	Site Establishment (Office)	1s	1	1,137	29,330	1,554	109,279		
	Employers Housing	1s	1	1,137	29,330	1,554	109,279		
	Vehicle	1s	1	354	6,221	442	31,106		
5	Temporary works	1s	1	1,706	43,996	2,332	163,918		
6	Soil investigation	1s	1	35	3,733	88	6,221		
7	Training	1s	1	119	0	119	8,336		
8	Miniature Model	1s	1	15	2,461	50	3,515		
9	Site management cost	1s	1	4,549	234,643	7,887	554,436		
	Total of General and Preliminary			13,601	481,701	20,453	1,437,870		

Paviodar Airport Project Cost Estimation (Break Down, 2005 year) KZT/US\$ = 70.3

Work Item	Unit	Qty	Unit Rate		Amount		Combined Amount	
			US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
I Compensation								
1) Land acquisition	ha	0		50,000	0	0	0	0
2) Noise pollution	l.s	0			0	0	0	0
Subtotal					0	0	0	0
II Civil Work								
1 Airside								
1) Earthwork								
Excavation	m3	44,363	4.00	310	177	13,752	373	26,227
Embankment	m3	22,181	2.00	145	44	3,216	90	6,335
Demolition	m3	0	2.00	145	0	0	0	0
Stripping	m3	66,100	2.00	145	132	9,585	269	18,878
Sodding	m3	33,800	4.00	400	135	13,520	328	23,025
Subtotal					489	40,073	1,059	74,465
2) Pavement Work								
Runway extension	m2	9,000	39.56	1,854	356	16,685	593	41,712
Extension of R/W S/d & Overrun	m2	44,100	30.11	18,06	1,328	797	1,339	94,139
R/W overlay on flexible pave.	m2	0	17.75	832	0	0	0	0
R/W overlay on rigid pave.	m2	110,740	17.75	832	1,966	92,123	3,276	230,306
T/W expansion	m2	4,800	39.56	1,854	190	8,899	316	22,246
Taxiway overlay	m2	7,200	17.75	832	128	5,990	213	14,974
Taxiway Shoulder Expansion	m2	6,000	30.11	18,06	181	108	182	12,808
Apron overlay	m2	2,200	17.75	832	39	1,830	65	4,575
A/P expansion	m2	27,900	39.56	1,854	1,104	51,723	1,839	129,308
GSE Road	m2	8,000	7.93	2,623	63	20,984	362	25,444
Perimeter Road	m2	0	7.93	2,623	0	0	0	0
Subtotal					5,354	199,138	8,187	575,512
3) Miscellaneous								
Marking	m2	16,275	0.67	24	11	391	16	391
Cable Duct 12nos	m	200	541.22	25,365	108	5,073	180	5,076
Cable Duct 8 nos	m	380	343.40	16,094	130	6,116	217	6,119
Manhole C-type	nos	16	2,748.98	128,835	44	2,061	73	2,052
Manhole D-type	nos	2	3,933.96	184,372	8	369	13	369
Subtotal					301	14,009	501	14,017
Airside Total					6,145	253,220	9,747	663,994
2 Landside								
1) Earth Works								
Demolition	m3	1,394	4.00	310	6	432	12	824
Excavation	m3	6,972	2.00	145	14	1,011	28	1,991
Stripping		40,000	2.00	145	80	5,800	163	11,424
Sodding		30,000	2.00	145	60	4,350	122	8,568
Subtotal					160	11,593	324	22,808
2) Pavement Work								
Road & Carpark	m2	23,240	7.93	2,623.00	184	60,959	1,051	73,914
3) Miscellaneous								
Marking & Traffic Sign Board	l.s	1			6	24	6	446
Fence	m	0	0.80	1,462	0	0	0	0

Landscaping	m2	30,000	0.6	2.4	18	72	19	1,337
Subtotal					24	96	25	1,785
Landside Total					368	72,648	1,401	98,505
Civil Total					6,512	325,868	11,148	762,499
III Architectural Works								
1 Passenger Terminal Building	m2	6,200	1,100.00	63,270	6,820	392,274	12,400	871,720
2 Cargo Terminal Building	m2	560	825.00	47,453	462	26,573	840	59,052
3 Administration Building	m2	1,400	962.50	55,361	1,348	77,506	2,450	172,235
4 Control Tower and navigation office	m2	1,000	1,100.00	63,270	1,100	63,270	2,000	140,600
5 Fire Station	m2	300	962.50	55,361	289	16,608	525	36,908
6 Main Power Station for building	m2	750	962.50	55,361	722	41,521	1,313	92,269
7 Main Power Station for Navigation	m2	300	962.50	55,361	289	16,608	525	36,908
8 Boiler Station and cooling station	m2	0	825.00	47,453	0	0	0	0
9 Airline office and pilot training center	m2	500	1,100.00	63,270	550	31,635	1,000	70,300
10 Incinerator	m2	0	825.00	47,453	0	0	0	0
11 Hangar	m2	0	1,375.00	79,088	0	0	0	0
12 Radar Station	m2	100	825.00	47,453	83	4,745	150	10,545
13 Airport Maintenance Bldg. and garage	m2	450	962.50	55,361	433	24,913	788	55,361
14 VTP terminal building	m2	0	1,100.00	63,270	0	0	0	0
15 GSE maintenance workshop	m2	100	825.00	47,453	83	4,745	150	10,545
16 Other building	m2	233	687.50	39,544	160	9,222	292	20,492
Total Architectural Work					12,337	709,621	22,432	1,576,934
IV Air Navigation Systems								
1 Air Navigation System	l.s	1			6,282	49,073	6,981	490,731
2 Airfield Lighting	l.s	1			6,928	208,735	9,897	695,783
3 Communication System	l.s	1			2,408	18,813	2,676	188,130
4 Meteorological Observation System	l.s	1			1,300	10,153	1,444	101,531
Total Air Navigation System					16,919	286,774	20,998	1,476,176
VI Supporting Facilities								
1 Power Supply	l.s	1			2,804	21,899	3,115	218,988
2 Road & Car park Lighting	l.s	1			119	933	133	9,332
3 Sanitary works	km	1	6.28	4745	422	3,297	469	32,973
Water Supply System	km	1	57.6	7160	478	5,733	531	37,327
Sewerage System	l.s	0			0	0	0	0
Solid Waste Disposal								
Sub-total					900	7,030	1,000	70,300
4 Communication System	l.s	1			13	3	13	884
5 Air-conditioning & heating system	l.s	1			3,540	62,212	4,425	311,062
Piping	l.s	1			920	16,175	1,150	80,876
Equipment	l.s	1			4,460	78,388	5,575	391,938
Sub-total					2,655	1,770	2,680	188,407
6 Fuel Supply System hydrant system	l.s	1			10,951	110,023	12,516	879,849
Total Supporting Facilities								

Pavlodar Airport Project Cost Estimation (Break Down, 2005 year)

KZT/US\$ = 70.3

Work Item		Unit		Unit Rate		Amount		Combined Amount	
		Unit	Qty	US\$	KZT	US\$ 1,000	KZT 1,000	US\$ 1000	KZT 1,000
VI Special Equipment									
1 Conveying System	Dep. Baggage Conveyor	no	1	101	792	101	792	113	7,923
	Weighing Scale	no	14	16	128	229	1,785	254	17,853
	Arr. Baggage Conveyor	no	4	166	1,300	666	5,200	740	51,996
	Spare Parts					30	233	33	2,333
	Subtotal					1,026	8,011	1,139	80,105
2 Elevator & escalator	Elevator	no	3	49	380	146	1,140	159	11,145
	Escalator	no	2	128	1,002	257	2,004	279	19,598
	Spare Parts					12	94	13	94
	Subtotal					414	3,238	451	30,837
3 Cold Storage	Refrigerator	no	1	11	82	11	82	12	822
	Freezer Room	no	1	3	22	3	22	3	223
	Cargo Weighing Scale	no	2	28	221	56	441	63	4,412
	Spare Parts					2	16	2	164
	Subtotal					72	562	80	5,621
4 Boarding Bridge		no	2	597	4,666	1,195	9,332	1,327	93,319
	Spare Parts					38	297	42	2,973
5 Fire Fighting Car						1,233	9,629	1,370	96,292
	Major Vehicle	no	3	919	7,181	2,758	21,543	3,064	215,430
	Rapid Intervention	no	1	666	5,200	666	5,200	740	52,000
	Ambulance	no	1	33	261	33	261	37	2,614
	Command Car	no	1	28	220	28	220	31	2,201
	Spare Parts	l.s.	1			105	817	116	8,167
	Subtotal					3,590	28,041	3,989	280,413
							164	1,279	182
Maintenance Equipment	Grader 3.1m wide	no	2	81.88	640	46	358	51	3,583
	Sewage pump	no	3	15.29	119	8	60	8	597
	Storm water drainage pump	no	2	36.20	283	72	566	80	5,655
	Snow plow	no	2	11.01	86	22	172	24	1,720
	Lawn mower	no	2	5.42	42	11	85	12	846
	Grass plow	no	1	92.11	719	92	719	102	7,195
Road sweeper	no	1			415	3,239	461	32,388	
Subtotal					6,749	52,719	7,489	525,655	
Total Special Equipment						6,749	52,719	7,489	525,655

VI General Preliminary									
1	Insurance	1s	1	1,069	29,700	1,492	104,877		
2	Mobil/ Demobilization	1s	1	1,604	44,550	2,238	157,315		
3	Site Establishment	1s	1	2,139	59,400	2,984	209,754		
4	Site Establishment (Office)	1s	1	1,069	29,700	1,492	104,877		
	Employers Housing	1s	1	1,069	29,700	1,492	104,877		
	Vehicle	1s	1	354	6,221	442	31,106		
5	Temporary works	1s	1	1,604	44,550	2,238	157,315		
6	Soil investigation	1s	1	35	3,733	88	6,221		
7	Training	1s	1	119	0	119	8,336		
8	Miniature Model	1s	1	15	2,461	50	3,515		
9	Site management cost	1s	1	4,277	237,601	7,657	538,308		
	Total of General and Preliminary			13,355	487,616	20,292	1,426,501		

Aircraft Noise Metrics

1. Aircraft noise has many dimensions. Most of these dimensions relate to the reaction of people to aircraft noise. these reaction relate to the sound level, the varying sensitivity of the human ear to different frequencies or pitches of sound, the frequency of aircraft noise intrusions, the time of day of these intrusions and the number of intrusions over a period such as a day.

Many metrics have been developed to describe airport noise caused by aircraft at several countries based on their local habits and conditions. The following index has been proposed by ICAO as one of the metrics.

2. Weighted Equivalent Continuous Perceived Noise Level (WECPNL)

This metric is characterized with weight for the time of sound intrusions by daytime; 07:00-19:00, evening time; 19:00-22:00, and night time; 22:00-07:00.

$$\begin{aligned} \text{WECPNL} = & 10 \log_{10} \{ \text{anti log}_{10} \{ \text{EPNL}_1 + 10 \log_{10} N_1 \} / 10 \} \\ & + \text{anti log}_{10} \{ (\text{EPNL}_2 + 5 + 10 \log_{10} N_2) / 10 \} \\ & + \text{anti log}_{10} \{ (\text{EPNL}_3 + 10 + 10 \log_{10} N_3) / 10 \} \} - 39.4 \end{aligned}$$

where,

$N_{1,2,3}$: number of noise in the periods of daytime, evening time and night time, respectively

$\text{EPNL}_{1,2,3}$: average of noise power in the period of daytime, evening time and night time, respectively (effective perceived noise level)

Appendix 6.5 Assumption for Integrated Noise Model

INM 5.0 ECHO REPORT

STUDY: E:\AKMOLA\

Created date:

Description : Akmola Airport Year 2020 Noise Exposure Model

Airport : TSE

UNITS: METRIC SYSTEM

STUDY AIRPORT

Lat : 00-00-00.000N

Long : 000-00-00.000E

Elev : 353.00 m

Temp : 20.70 C

Press : 759.97 mm-Hg

Wind : 0.00 km/h

STUDY RUNWAYS

04

Lat : 00-00-00.000N

Long : 000-00-56.590E

X : 1.7499 km

Y : 0.0000 km

Elevation: 353.0 m

Length : 3500 m

Gradient : 0.00%

Wind : 0.0 km/h

TkoThrsh : 61 m

AppThrsh : 0 m

22

Lat : 00-00-00.000N

Long : 000-00-56.590W

X : -1.7499 km

Y : 0.0000 km

Elevation: 353.0 m

Length : 3500 m

Gradient : 0.00%

Wind : 0.0 km/h

TkoThrsh : 61 m

AppThrsh : 0 m

STUDY TRACKS

RwyId-OpType-TrkId

Sub PctSub TrkType Delta(m)

04-APP-ATR

0 100.00 Vectors 0.0

04-DEP-STR

0 100.00 Vectors 0.0

22-APP-STR

0 100.00 Vectors 0.0

22-DEP-STR

0 100.00 Vectors 0.0

STUDY TRACK DETAIL

RwyId-OpType-TrkId-SubTrk

SegType Param1 Param2(km)

04-APP-ATR-0

1 Straight 10.0001 km

04-DEP-STR-0

1 Straight 10.0001 km

22-APP-STR-0

1 Straight 10.0001 km

22-DEP-STR-0

1 Straight 10.0001 km

STUDY AIRCRAFT

737400 Standard data

A300 Standard data

DHC830 Standard data

STUDY SUBSTITUTION AIRCRAFT

EK50

Fokker 50

Acf Percent

DHC830 100.0 %

FLIGHT OPERATIONS

AcfId Op Prof Rwy Track Group Day Eve Night

737400 APP S1 04 ATR 0 COM 17.2000 2.4700 4.5700

737400	APP S1	22	STR 0 COM	26.9000	3.8600	7.1600
737400	DEP S1	04	STR 0 COM	9.8200	3.0100	0.4300
737400	DEP S1	22	STR 0 COM	15.4000	4.7000	0.6800
737400	DEP S2	04	STR 0 COM	5.0200	1.3100	1.4700
737400	DEP S2	22	STR 0 COM	7.8600	2.0500	2.2900
737400	DEP S4	04	STR 0 COM	1.0900	0.2100	1.4300
737400	DEP S4	22	STR 0 COM	1.7100	0.3300	2.2300
A300	APP S1	04	ATR 0 COM	1.2200	0.8500	2.0200
A300	APP S1	22	STR 0 COM	1.9000	1.3400	3.1700
A300	DEP S1	04	STR 0 COM	0.2900	0.0900	0.0100
A300	DEP S1	22	STR 0 COM	0.4500	0.1400	0.0200
A300	DEP S2	04	STR 0 COM	0.7300	0.1200	0.3200
A300	DEP S2	22	STR 0 COM	1.1300	0.1900	0.5100
A300	DEP S4	04	STR 0 COM	0.8000	0.1600	1.3800
A300	DEP S4	22	STR 0 COM	1.2400	0.2600	2.1600
DHC830	APP S1	04	ATR 0 COM	1.3880	0.0940	0.0940
DHC830	APP S1	22	STR 0 COM	2.1720	0.1460	0.1460
DHC830	DEP S1	04	STR 0 COM	1.1540	0.3590	0.0470
DHC830	DEP S1	22	STR 0 COM	1.8060	0.5610	0.0730

RUNUP OPERATIONS

ID	X(km)	Y(km)	Head Thrust	Time(sec)	Day	Eve	Night
----	-------	-------	-------------	-----------	-----	-----	-------

GRIDS

	X(km)	Y(km)	Ang(deg)	DistI(km)	DistJ(km)	NI	NJ
CNR Contour	-14.8160	-14.8160	0.0	29.6320	29.6320	2	2

RUN OPTIONS

Run Type : SingleMetric
 NoiseMetric : WECPNL
 TA Threshold : 95.0 dB
 Do Terrain : No
 Do Contour : Yes
 Refinement : 6
 Tolerance : 1.00
 Do Population : No
 Do Locations : No
 Do Stand.Grid : No
 Do Detail.Grid : No
 Low Cutoff : 70.0
 High Cutoff : 95.0

INM 5.0 ECHO REPORT

STUDY: E:\AKTAU

Description : Aktau Airport Noise Exposure Map Year 2020

Airport : SCO

UNITS: METRIC SYSTEM

STUDY AIRPORT

Lat : 00-00-00.000N
Long : 000-00-00.000E
Elev : 22.00 m
Temp : 27.30 C
Press : 759.97 mm-Hg
Wind : 0.00 km/h

STUDY RUNWAYS

12
Lat : 00-00-00.000N
Long : 000-00-42.850W
X : -1.3250 km
Y : 0.0000 km
Elevation: 22.0 m
Length : 2650 m
Gradient : 0.00%
Wind : 0.0 km/h
TkoThrsh : 61 m
AppThrsh : 0 m

30

Lat : 00-00-00.000N
Long : 000-00-42.850E
X : 1.3250 km
Y : 0.0000 km
Elevation: 22.0 m
Length : 2650 m
Gradient : 0.00%
Wind : 0.0 km/h
TkoThrsh : 61 m
AppThrsh : 0 m

STUDY TRACKS

RwyId-OpType-TrkId	Sub	PctSub	TrkType	Delta(m)
12-APP-STR	0	100.00	Vectors	0.0
12-DEP-STR	0	100.00	Vectors	0.0
30-APP-STR	0	100.00	Vectors	0.0
30-DEP-STR	0	100.00	Vectors	0.0

STUDY TRACK DETAIL

RwyId-OpType-TrkId-SubTrk	SegType	Param1	Param2(km)
12-APP-STR-0	1	Straight	10.0001 km
12-DEP-STR-0	1	Straight	10.0001 km
30-APP-STR-0	1	Straight	10.0001 km
30-DEP-STR-0	1	Straight	10.0001 km

STUDY AIRCRAFT

737400 Standard data
A300 Standard data
DHC830 Standard data

STUDY SUBSTITUTION AIRCRAFT

FK50
Fokker 50
Acft Percent
DHC830 100.0 %

FLIGHT OPERATIONS

AcftId	Op	Prof	Rwy	Track	Group	Day	Eve	Night
737400	APP	S1	12	STR	0 COM	20.0000	0.0000	0.0000
737400	APP	S1	30	STR	0 COM	20.0000	0.0000	0.0000

737400	DEP S1	12	STR 0 COM	6.0000	0.0000	0.0000
737400	DEP S1	30	STR 0 COM	6.0000	0.0000	0.0000
737400	DEP S2	12	STR 0 COM	4.0000	0.0000	0.0000
737400	DEP S2	30	STR 0 COM	4.0000	0.0000	0.0000
737400	DEP S3	12	STR 0 COM	9.0000	0.0000	0.0000
737400	DEP S3	30	STR 0 COM	9.0000	0.0000	0.0000
737400	DEP S4	12	STR 0 COM	1.0000	0.0000	0.0000
737400	DEP S4	30	STR 0 COM	1.0000	0.0000	0.0000
A300	APP S1	12	STR 0 COM	2.0000	0.0000	0.0000
A300	APP S1	30	STR 0 COM	2.0000	0.0000	0.0000
A300	DEP S2	12	STR 0 COM	2.0000	0.0000	0.0000
A300	DEP S2	30	STR 0 COM	2.0000	0.0000	0.0000
DHC830	APP S1	12	STR 0 COM	1.0000	0.0000	0.0000
DHC830	APP S1	30	STR 0 COM	1.0000	0.0000	0.0000
DHC830	DEP S1	12	STR 0 COM	1.0000	0.0000	0.0000
DHC830	DEP S1	30	STR 0 COM	1.0000	0.0000	0.0000

RUNUP OPERATIONS

ID	X(km)	Y(km)	Head Thrust	Tintc(sec)	Day	Eve	Night

GRIDS

	X(km)	Y(km)	Ang(deg)	DistI(km)	DistJ(km)	NI	NJ
CNR Contour	-14.8160	-14.8160	0.0	29.6320	29.6320	2	2

RUN OPTIONS

Run Type : SingleMetric
 NoiseMetric : WECPNL
 TA Threshold : 95.0 dB
 Do Terrain : No
 Do Contour : Yes
 Refinement : 6
 Tolerance : 1.00
 Do Population : No
 Do Locations : No
 Do Stand.Grid : No
 Do Detail.Grid: No
 Low Cutoff : 70.0
 High Cutoff : 95.0

INM 5.0 ECHO REPORT

STUDY: E:\AKTYUBIN\

Description : Aktyubinsk Airport Noise Exposure Map Year 2020

Airport : AKX

UNITS: METRIC SYSTEM

STUDY AIRPORT

Lat : 00-00-00.000N
 Long : 000-00-00.000E
 Elev : 225.00 m
 Temp : 28.00 C
 Press : 759.97 mm-Hg
 Wind : 0.00 km/h

STUDY RUNWAYS

13
 Lat : 00-00-00.000N
 Long : 000-00-50.080W
 X : -1.5486 km
 Y : 0.0000 km
 Elevation: 225.0 m
 Length : 3097 m
 Gradient : 0.00%
 Wind : 0.0 km/h
 TkoThrsh : 61 m
 AppThrsh : 0 m

31
 Lat : 00-00-00.000N
 Long : 000-00-50.080E
 X : 1.5486 km
 Y : 0.0000 km
 Elevation: 225.0 m
 Length : 3097 m
 Gradient : 0.00%
 Wind : 0.0 km/h
 TkoThrsh : 61 m
 AppThrsh : 0 m

STUDY TRACKS

RwyId-OpType-TrkId	Sub	PctSub	TrkType	Delta(m)
13-APP-STR	0	100.00	Vectors	0.0
13-DEP-STR	0	100.00	Vectors	0.0
31-APP-STR	0	100.00	Vectors	0.0
31-DEP-STR	0	100.00	Vectors	0.0

STUDY TRACK DETAIL

RwyId-OpType-TrkId-SubTrk	SegType	Param1	Param2(km)
13-APP-STR-0	1	Straight	10.0001 km
13-DEP-STR-0	1	Straight	10.0001 km
31-APP-STR-0	1	Straight	10.0001 km
31-DEP-STR-0	1	Straight	10.0001 km

STUDY AIRCRAFT

737400 Standard data
 A300 Standard data

STUDY SUBSTITUTION AIRCRAFT

FLIGHT OPERATIONS

AcftId	Op	Prof	Rwy	Track	Group	Day	Eve	Night
737400	APP	S1	13	STR	0 COM	7.7000	0.0000	0.0000
737400	APP	S1	31	STR	0 COM	6.3000	0.0000	0.0000
737400	DEP	S1	13	STR	0 COM	2.2000	0.0000	0.0000
737400	DEP	S1	31	STR	0 COM	1.8000	0.0000	0.0000
737400	DEP	S2	13	STR	0 COM	5.5000	0.0000	0.0000
737400	DEP	S2	31	STR	0 COM	4.5000	0.0000	0.0000
A300	APP	S1	13	STR	0 COM	1.1000	0.0000	0.0000
A300	APP	S1	31	STR	0 COM	0.9000	0.0000	0.0000
A300	DEP	S2	13	STR	0 COM	1.1000	0.0000	0.0000

A300 DEP S2 31 STR 0 COM 0.9000 0.0000 0.0000

RUNUP OPERATIONS

ID X(km) Y(km) Head Thrust Time(sec) Day Eve Night

GRIDS

	X(km)	Y(km)	Ang(deg)	DistI(km)	DistJ(km)	NI	NJ
CNR Contour	-14.8160	-14.8160	0.0	29.6320	29.6320	2	2

RUN OPTIONS

Run Type : SingleMetric
NoiseMetric : WECPNL
TA Threshold : 95.0 dB
Do Terrain : No
Do Contour : Yes
Refinement : 6
Tolerance : 1.00
Do Population : No
Do Locations : No
Do Stand.Grid : No
Do Detail.Grid : No
Low Cutoff : 70.0
High Cutoff : 95.0

INM 5.0 ECHO REPORT

STUDY: E:ALMATY

Description : Almaty Airport Year 2020 Noise Exposer Map
Airport : ALM

UNITS: METRIC SYSTEM

STUDY AIRPORT

Lat : 00-00-00.000N
Long : 000-00-00.000E
Elev : 681.00 m
Temp : 30.80 C
Press : 759.97 mm-Hg
Wind : 0.00 km/h

STUDY RUNWAYS

05
Lat : 00-00-00.000N
Long : 000-01-11.140W
X : -2.1998 km
Y : 0.0000 km
Elevation: 681.0 m
Length : 4399 m
Gradient : 0.00%
Wind : 0.0 km/h
TkoThrsh : 61 m
AppThrsh : 0 m

23
Lat : 00-00-00.000N
Long : 000-01-11.140E
X : 2.1998 km
Y : 0.0000 km
Elevation: 681.0 m
Length : 4399 m
Gradient : 0.00%
Wind : 0.0 km/h
TkoThrsh : 61 m
AppThrsh : 0 m

STUDY TRACKS

Rwyld-OpType-TrkId	Sub	PctSub	TrkType	Delta(m)
05 -APP-STR	0	100.00	Vectors	0.0
05 -DEP-STR	0	100.00	Vectors	0.0
23 -APP-STR	0	100.00	Vectors	0.0
23 -DEP-STR	0	100.00	Vectors	0.0

STUDY TRACK DETAIL

Rwyld-OpType-TrkId-SubTrk	SegType	Param1	Param2(km)
05 -APP-STR -0	1	Straight	10.0001 km
05 -DEP-STR -0	1	Straight	10.0001 km
23 -APP-STR -0	1	Straight	10.0001 km
23 -DEP-STR -0	1	Straight	10.0001 km

STUDY AIRCRAFT

737400 Standard data
747400 Standard data
A300 Standard data
DHC830 Standard data

STUDY SUBSTITUTION AIRCRAFT

FK50
Fokker 50
Acft Percent
DHC830 100.0 %

FLIGHT OPERATIONS

AcftId	Op	Prof	Rwy	Track	Group	Day	Even	Night
737400	APP	S1	05	STR	0	COM	33.5760	5.3280 10.3680
737400	APP	S1	23	STR	0	COM	22.3840	3.5520 6.9120
737400	DEP	S1	05	STR	0	COM	15.2640	4.6800 1.6560

737400	DEP S1	23	STR 0 COM	10.1760	3.1200	1.1040
737400	DEP S2	05	STR 0 COM	7.7400	2.2020	1.4580
737400	DEP S2	23	STR 0 COM	5.1600	1.4680	0.9720
737400	DEP S3	05	STR 0 COM	6.7080	1.5540	1.3380
737400	DEP S3	23	STR 0 COM	4.4720	1.0360	0.8920
737400	DEP S4	05	STR 0 COM	2.5440	0.4800	2.9760
737400	DEP S4	23	STR 0 COM	1.6960	0.3200	1.9840
747400	APP S1	05	STR 0 COM	3.5520	1.1160	2.7000
747400	APP S1	23	STR 0 COM	2.3680	0.7440	1.8000
747400	DEP S1	05	STR 0 COM	1.3320	0.4140	0.0540
747400	DEP S1	23	STR 0 COM	0.8880	0.2760	0.0360
747400	DEP S4	05	STR 0 COM	2.6880	0.4440	1.0680
747400	DEP S4	23	STR 0 COM	1.7920	0.2960	0.7120
747400	DEP S5	05	STR 0 COM	0.4080	0.0840	0.7080
747400	DEP S5	23	STR 0 COM	0.2720	0.0560	0.4720
A300	APP S1	05	STR 0 COM	3.3180	2.3940	5.6340
A300	APP S1	23	STR 0 COM	2.2120	1.5960	3.7560
A300	DEP S1	05	STR 0 COM	0.8520	0.2220	0.7260
A300	DEP S1	23	STR 0 COM	0.5680	0.1480	0.4840
A300	DEP S2	05	STR 0 COM	1.3080	0.2940	0.7980
A300	DEP S2	23	STR 0 COM	0.8720	0.1960	0.5320
A300	DEP S3	05	STR 0 COM	0.6600	0.1140	0.4260
A300	DEP S3	23	STR 0 COM	0.4400	0.0760	0.2840
A300	DEP S4	05	STR 0 COM	1.4760	0.2820	1.8420
A300	DEP S4	23	STR 0 COM	0.9840	0.1880	1.2280
A300	DEP S5	05	STR 0 COM	0.6120	0.1260	1.0620
A300	DEP S5	23	STR 0 COM	0.4080	0.0840	0.7080
DHC830	APP S1	05	STR 0 COM	1.0560	0.0720	0.0720
DHC830	APP S1	23	STR 0 COM	0.7040	0.0480	0.0480
DHC830	DEP S1	05	STR 0 COM	0.8880	0.2760	0.0360
DHC830	DEP S1	23	STR 0 COM	0.5920	0.1840	0.0240

RUNUP OPERATIONS

ID	X(km)	Y(km)	Head	Thrust	Time(sec)	Day	Eve	Night
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GRIDS

	X(km)	Y(km)	Ang(deg)	Distl(km)	Distl(km)	NI	NJ
CNR Contour	-14.8160	-14.8160	0.0	29.6320	29.6320	2	2

RUN OPTIONS

Run Type : SingleMetric
 NoiseMetric : WECPNL
 TA Threshold : 95.0 dB
 Do Terrain : No
 Do Contour : Yes
 Refinement : 6
 Tolerance : 1.00
 Do Population : No
 Do Locations : No
 Do Stand.Grid : No
 Do Detail.Grid : No
 Low Cutoff : 70.0
 High Cutoff : 95.0

INM 5.0 ECHO REPORT

STUDY: E:\ATYRAU

Description : Atyrau Airport Noise Exposure Map Year 2020

Airport : G UW

UNITS: METRIC SYSTEM

STUDY AIRPORT

Lat : 00-00-00.000N
 Long : 000-00-00.000E
 Elev : -23.00 m
 Temp : 26.00 C
 Press : 759.97 mm-Hg
 Wind : 0.00 km/h

STUDY RUNWAYS

14
 Lat : 00-00-00.000N
 Long : 000-00-38.000W
 X : -1.1750 km
 Y : 0.0000 km
 Elevation: -23.0 m
 Length : 2350 m
 Gradient : 0.00%
 Wind : 0.0 km/h
 TkoThrsh : 61 m
 AppThrsh : 0 m

32
 Lat : 00-00-00.000N
 Long : 000-00-38.000E
 X : 1.1750 km
 Y : 0.0000 km
 Elevation: -23.0 m
 Length : 2350 m
 Gradient : 0.00%
 Wind : 0.0 km/h
 TkoThrsh : 61 m
 AppThrsh : 0 m

STUDY TRACKS

Rwyld-OpType-Trkld	Sub	PctSub	TrkType	Delta(m)
14 -APP-STR	0	100.00	Vectors	0.0
14 -DEP-STR	0	100.00	Vectors	0.0
32 -APP-STR	0	100.00	Vectors	0.0
32 -DEP-STR	0	100.00	Vectors	0.0

STUDY TRACK DETAIL

Rwyld-OpType-Trkld-SubTrk	SegType	Param1	Param2(km)
14 -APP-STR -0	1	Straight	10.0001 km
14 -DEP-STR -0	1	Straight	10.0001 km
32 -APP-STR -0	1	Straight	10.0001 km
32 -DEP-STR -0	1	Straight	10.0001 km

STUDY AIRCRAFT

737400 Standard data
 A300 Standard data
 DHC830 Standard data

STUDY SUBSTITUTION AIRCRAFT

FK50
 Fokker 50
 Acft Percent
 DHC830 100.0 %

FLIGHT OPERATIONS

Acftld	Op	Prof	Rwy	Track	Group	Day	Eve	Night	
737400	APP	S1	14	STR	0	COM	12.0000	0.0000	0.0000
737400	APP	S1	32	STR	0	COM	12.0000	0.0000	0.0000
737400	DEP	S1	14	STR	0	COM	5.0000	0.0000	0.0000
737400	DEP	S1	32	STR	0	COM	5.0000	0.0000	0.0000

737400	DEP S2	14	STR 0 COM	4.0000	0.0000	0.0000
737400	DEP S2	32	STR 0 COM	4.0000	0.0000	0.0000
737400	DEP S3	14	STR 0 COM	3.0000	0.0000	0.0000
737400	DEP S3	32	STR 0 COM	3.0000	0.0000	0.0000
A300	APP S1	14	STR 0 COM	1.0000	0.0000	0.0000
A300	APP S1	32	STR 0 COM	1.0000	0.0000	0.0000
A300	DEP S1	14	STR 0 COM	1.0000	0.0000	0.0000
A300	DEP S1	32	STR 0 COM	1.0000	0.0000	0.0000
DHC830	APP S1	14	STR 0 COM	1.0000	0.0000	0.0000
DHC830	APP S1	32	STR 0 COM	1.0000	0.0000	0.0000
DHC830	DEP S1	14	STR 0 COM	1.0000	0.0000	0.0000
DHC830	DEP S1	32	STR 0 COM	1.0000	0.0000	0.0000

RUNUP OPERATIONS

ID	X(km)	Y(km)	Head	Thrust	Time(sec)	Day	Eve	Night
----	-------	-------	------	--------	-----------	-----	-----	-------

GRIDS

	X(km)	Y(km)	Ang(deg)	DistI(km)	DistJ(km)	NI	NJ
CNR Contour	-14.8160	-14.8160	0.0	29.6320	29.6320	2	2

RUN OPTIONS

Run Type : SingleMetric
 NoiseMetric : WECPNL
 TA Threshold : 95.0 dB
 Do Terrain : No
 Do Contour : Yes
 Refinement : 6
 Tolerance : 1.00
 Do Population : No
 Do Locations : No
 Do Stand.Grid : No
 Do Detail.Grid : No
 Low Cutoff : 70.0
 High Cutoff : 95.0

INM 5.0 ECHO REPORT

STUDY: E:\PAVLODAR

Description : Pavlodar Airport Noise Exposure Map Year 2020

Airport : PWQ

UNITS: METRIC SYSTEM

STUDY AIRPORT

Lat : 00-00-00.000N
 Long : 000-00-00.000E
 Elev : 120.50 m
 Temp : 21.30 C
 Press : 759.97 mm-Hg
 Wind : 0.00 km/h

STUDY RUNWAYS

04
 Lat : 00-00-00.000N
 Long : 000-00-43.660W
 X : -1.3501 km
 Y : 0.0000 km
 Elevation: 120.5 m
 Length : 2700 m
 Gradient : 0.00%
 Wind : 0.0 km/h
 TkoThrsh : 61 m
 AppThrsh : 0 m

22
 Lat : 00-00-00.000N
 Long : 000-00-43.660E
 X : 1.3501 km
 Y : 0.0000 km
 Elevation: 120.5 m
 Length : 2700 m
 Gradient : 0.00%
 Wind : 0.0 km/h
 TkoThrsh : 61 m
 AppThrsh : 0 m

STUDY TRACKS

Rwyld-OpType-Trkld	Sub PctSub	TrkType	Delta(m)
04-APP-STR	0 100.00	Vectors	0.0
04-DEP-STR	0 100.00	Vectors	0.0
22-APP-STR	0 100.00	Vectors	0.0
22-DEP-STR	0 100.00	Vectors	0.0

STUDY TRACK DETAIL

Rwyld-OpType-Trkld-SubTrk	SegType	Param1	Param2(km)
04-APP-STR-0	1 Straight	10.0001	km
04-DEP-STR-0	1 Straight	10.0001	km
22-APP-STR-0	1 Straight	10.0001	km
22-DEP-STR-0	1 Straight	10.0001	km

STUDY AIRCRAFT

737400 Standard data
 A300 Standard data

STUDY SUBSTITUTION AIRCRAFT

FLIGHT OPERATIONS

Acfld	Op	Prof	Rwy	Track	Group	Day	Eve	Night
737400	APP	S1	04	STR	0 COM	10.3600	0.0000	0.0000
737400	APP	S1	22	STR	0 COM	17.6400	0.0000	0.0000
737400	DEP	S1	04	STR	0 COM	4.4400	0.0000	0.0000
737400	DEP	S1	22	STR	0 COM	7.5600	0.0000	0.0000
737400	DEP	S2	04	STR	0 COM	3.7000	0.0000	0.0000
737400	DEP	S2	22	STR	0 COM	6.3000	0.0000	0.0000
737400	DEP	S3	04	STR	0 COM	1.4800	0.0000	0.0000
737400	DEP	S3	22	STR	0 COM	2.5200	0.0000	0.0000

737400	DEP S4	04	STR 0 COM	0.7400	0.0000	0.0000
737400	DEP S4	22	STR 0 COM	1.2600	0.0000	0.0000
A300	APP S1	04	STR 0 COM	1.4800	0.0000	0.0000
A300	APP S1	22	STR 0 COM	2.5200	0.0000	0.0000
A300	DEP S2	04	STR 0 COM	0.7400	0.0000	0.0000
A300	DEP S2	22	STR 0 COM	1.2600	0.0000	0.0000
A300	DEP S4	04	STR 0 COM	0.7400	0.0000	0.0000
A300	DEP S4	22	STR 0 COM	1.2600	0.0000	0.0000

RUNUP OPERATIONS

ID	X(km)	Y(km)	Head Thrust	Time(sec)	Day	Eve	Night
----	-------	-------	-------------	-----------	-----	-----	-------

GRIDS

	X(km)	Y(km)	Ang(deg)	DistI(km)	DistJ(km)	NI	NJ
CNR Contour	-14.8160	-14.8160	0.0	29.6320	29.6320	2	2

RUN OPTIONS

Run Type : SingleMetric
 NoiseMetric : WECPNL
 TA Threshold : 95.0 dB
 Do Terrain : No
 Do Contour : Yes
 Refinement : 6
 Tolerance : 1.00
 Do Population : No
 Do Locations : No
 Do Stand.Grid : No
 Do Detail.Grid : No
 Low Cutoff : 70.0
 High Cutoff : 95.0

Appendix-6.6 (1) Value of physical property

Table.1 Value of physical property of each layer

Airport	layer	Density			Consistency					saturation	void ratio
		ρ	ρ_s	ρ_d	W	W _L	W _P	J _L	J _P	Sr	e
		g/cm ³			%					--	--
Akmola	I	--	--	--	--	--	--	--	--	--	--
	II	1.82	2.69	1.67	0.12	0.21	0.13	<0.0	0.08	0.52	0.601
	III	2.01	2.70	1.80	0.16	0.25	0.13	<0.0.9	0.12	0.86	0.523
	IV	1.98	2.66	--	--	--	--	--	--	--	0.63
	V	1.97	2.75	1.63	0.22	0.57	0.26	<0	0.31	0.88	0.725
Aktau	I	1.63	2.7	1.63	0.08	0.26	0.18	<0	0.10	0.26	0.81
	II	1.73	2.66	1.68	0.03	--	--	--	--	--	--
	III	--	--	--	--	--	--	--	--	--	--
	IV	2.2	--	--	--	--	--	--	--	--	--
	V	2.1	--	--	--	--	--	--	--	--	--
Aktyubinsk	I	--	--	--	--	--	--	--	--	--	--
	II	1.77	2.69	1.65	0.07	0.26	0.18	<0	0.08	0.30	0.637
	III	1.91	2.73	1.63	0.16	0.39	0.18	<0	0.21	0.63	0.672
	IV	1.61	2.66	1.58	0.02	--	--	--	--	0.09	0.699
	V	1.59	2.66	1.66	0.02	--	--	--	--	0.09	0.65
Almaty	I	--	--	--	--	--	--	--	--	--	--
	II	1.96	2.71	1.63	0.20	0.29	0.18	<0.0.45	0.11	0.78	0.66
	III	1.94	2.66	1.69	--	--	--	--	--	1.0	0.59
	IV	1.99	2.71	1.64	0.23	0.30	0.20	<0.0.81	0.10	0.89	0.66
	V	2.03	2.71	1.62	0.24	0.29	0.21	0.3-0.7	0.08	1.0	0.66
	VI	1.95	2.65	--	--	--	--	--	--	0.9	0.54
	VII	2.28	--	--	--	--	--	--	--	--	--
Atyrau	I	--	--	--	--	--	--	--	--	--	--
	II	1.82	2.71	1.51	0.23	0.35	0.24	<0.2.0	0.11	0.68	0.81
	III	1.84	2.70	1.43	0.29	0.29	0.18	0.3-1.4	0.11	0.81	0.896
	IV	1.98	2.69	1.63	0.23	0.24	0.19	<0.1.0	0.05	0.87	0.653
	V	2.90	--	--	--	--	--	--	--	--	0.111
Pavlodar	I	--	--	--	--	--	--	--	--	--	--
	II	1.80	2.69	1.70	0.06	0.20	0.16	<0	0.01	0.27	0.582
	III	2.04	2.66	--	--	--	--	--	--	--	0.53
	IV	1.89	2.74	1.45	0.29	0.56	0.30	<0	0.26	0.91	0.881

Annotate.1 Density : ρ (natural condition), ρ_s (soil particle), ρ_d (dry condition)

Annotate.2 Consistency : W (natural water content), W_L (liquid limit), W_P (plastic limit), J_P (plasticity index), J_L (liquid index)

Annotate.3 Liquid limit determinate by Fall cone test.

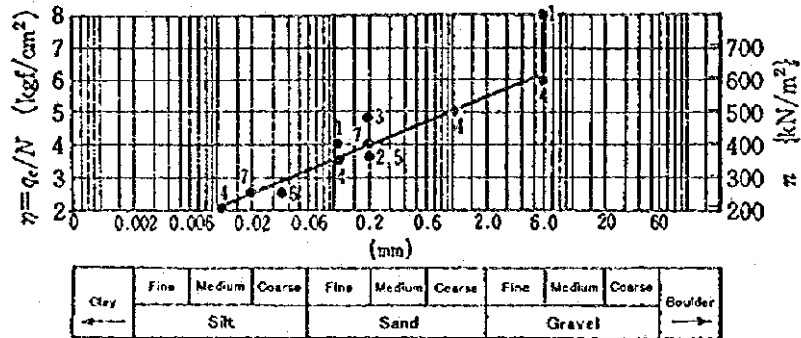
Annotate.4 Standard of Physical property test being used from USSR, and standard Number is ГOCT 5180-84.

Appendix-6.6 (2) Manual of Statical Penetration

Statical penetration executed on this investigation is according to states standard TOCT20069-81. The shape of cone point or the way of test is considered the same way as Dutch double-tube cone penetration test. penetration resistance value : $Pq(\text{kgf/cm}^2)$ is the same way as cone penetration resistance : $qc(\text{kgf/cm}^2)$.

Cone penetration resistance is suggested the way of calculating the value of matter indicated the following.

- ① Cohesion of clay soil (C) : $qc=10.75C$
- ② Although the relation of standard penetration (N value) is $qc=4N$ generally, coefficient will changes according to grain's diameter. Clay soil is calculated $qc=3N$, sandy soil $qc=4N$, conglomerate soil $qc=6N$ by Figure.1 and described with qc value.



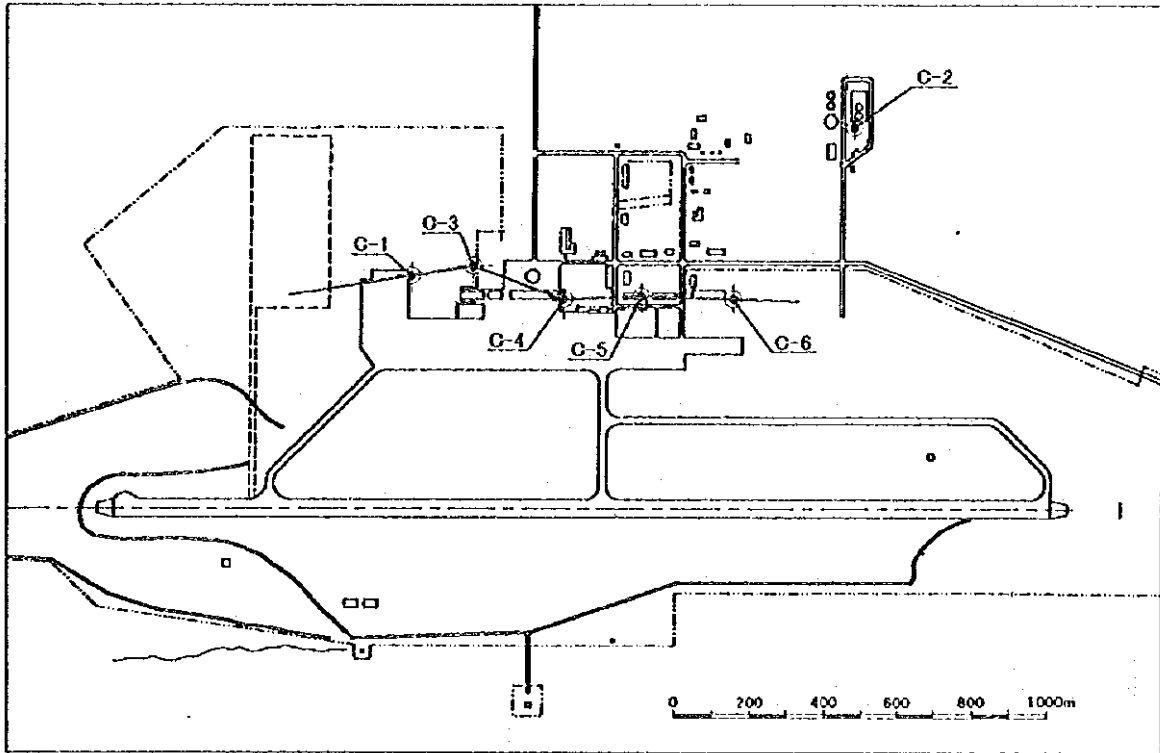
1. MEIGH, NIXON 2. MEYERHOF 3. RONDIN 4. SCHMERTMANN
 5. SHULTZE, KNAUSENBERGER 6. SUTHERLAND 7. THORBURN, MacVICAR

$\eta (=q_c/N)$ - particle size (Thorburn, 1970)

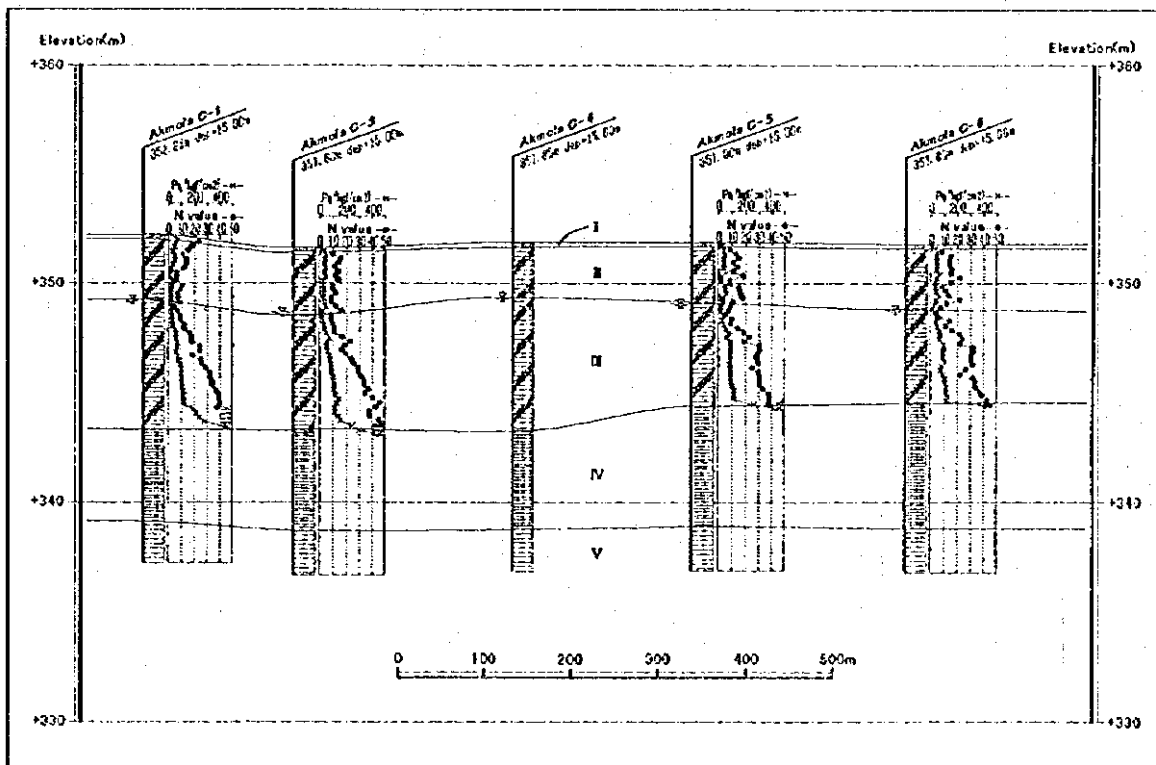
Figure.1 Relation between η value ($=q_c/N$) and particle size

- ③ In case of clay soil, the relation of CBR is calculated the relation of $qc=3.0 \sim 3.3$ CBR (kgf/cm^2) on Japan Road Association. We estimated the surface soil material of road foundation by this.

Appendix-6.6 (3) Boring location map and geological profile (Akmola airport)

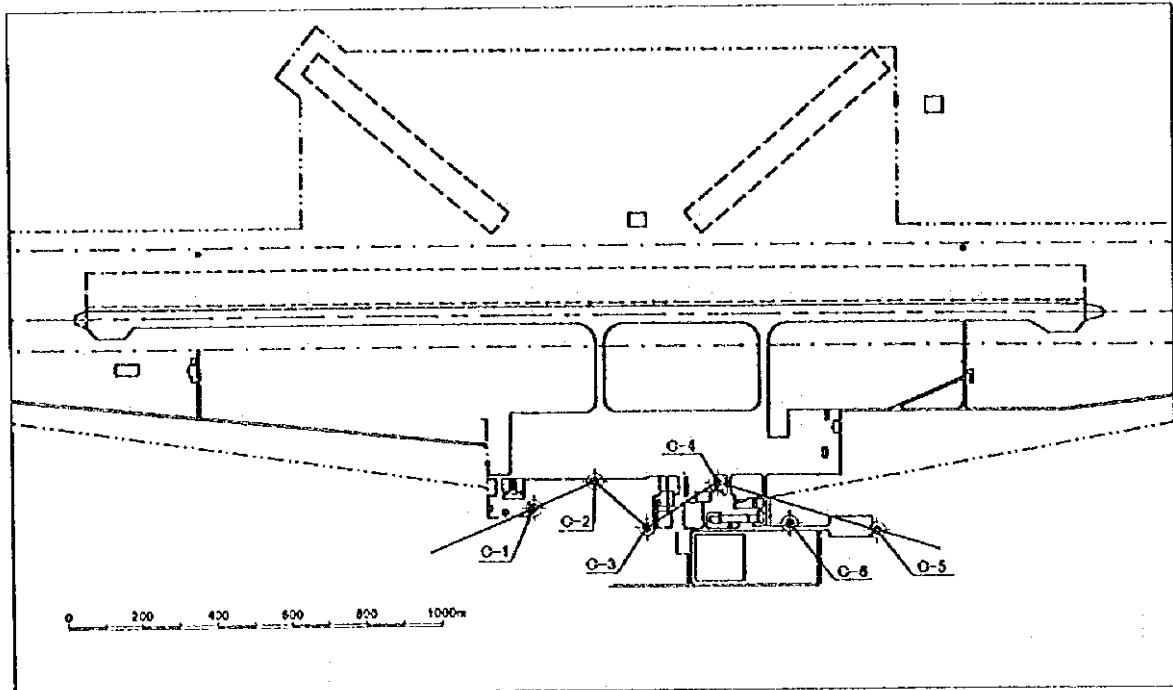


(a) Location map

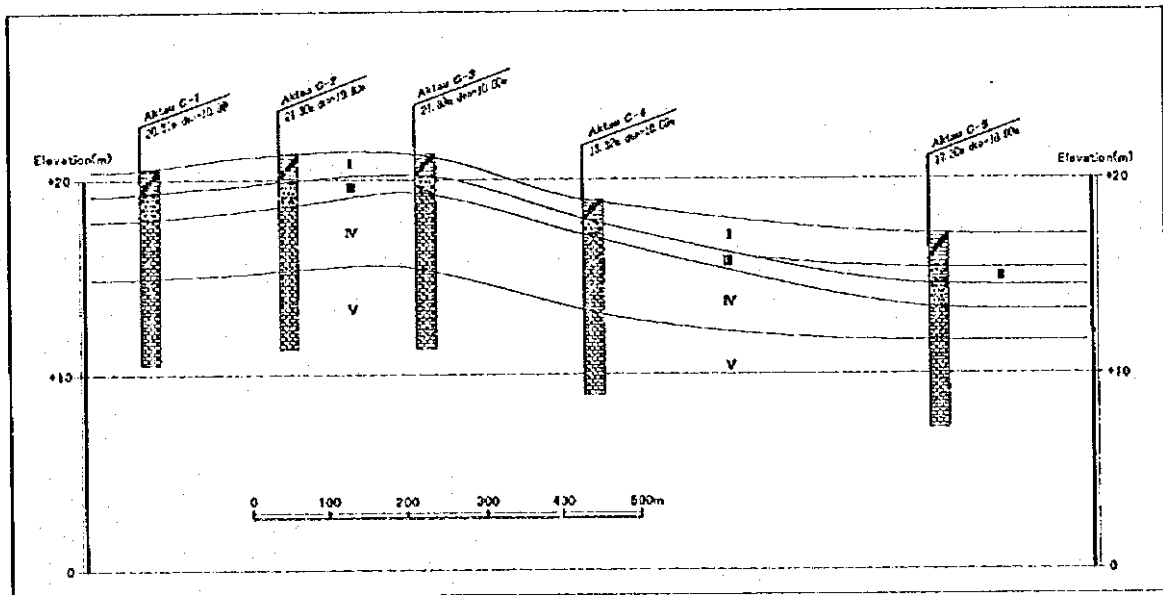


(b) Geological profile

Appendix-6.6 (4) Boring location map and geological profile (Aktau airport)

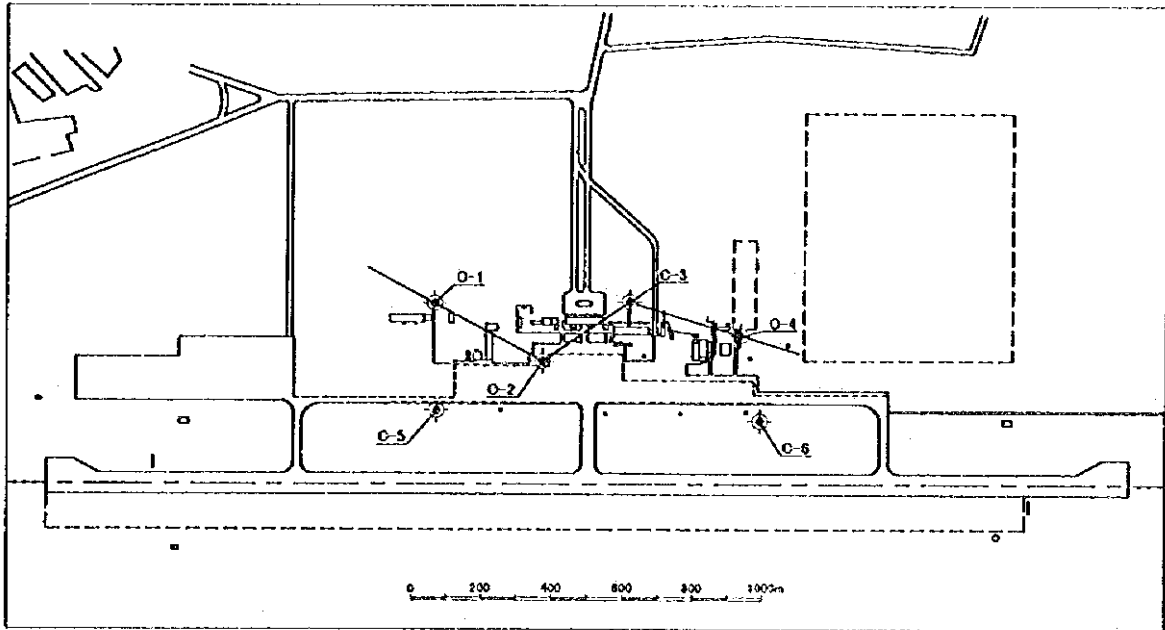


(a) Location map

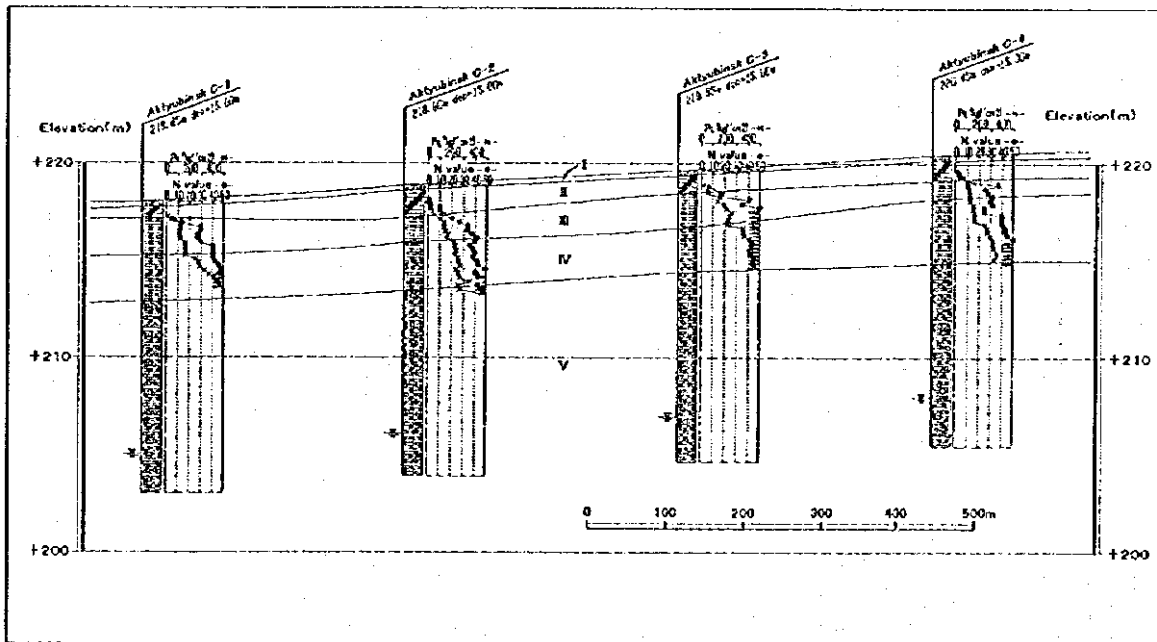


(b) Geological profile

Appendix-6.6 (5) Boring location map and geological profile (Aktyubinsk airport)

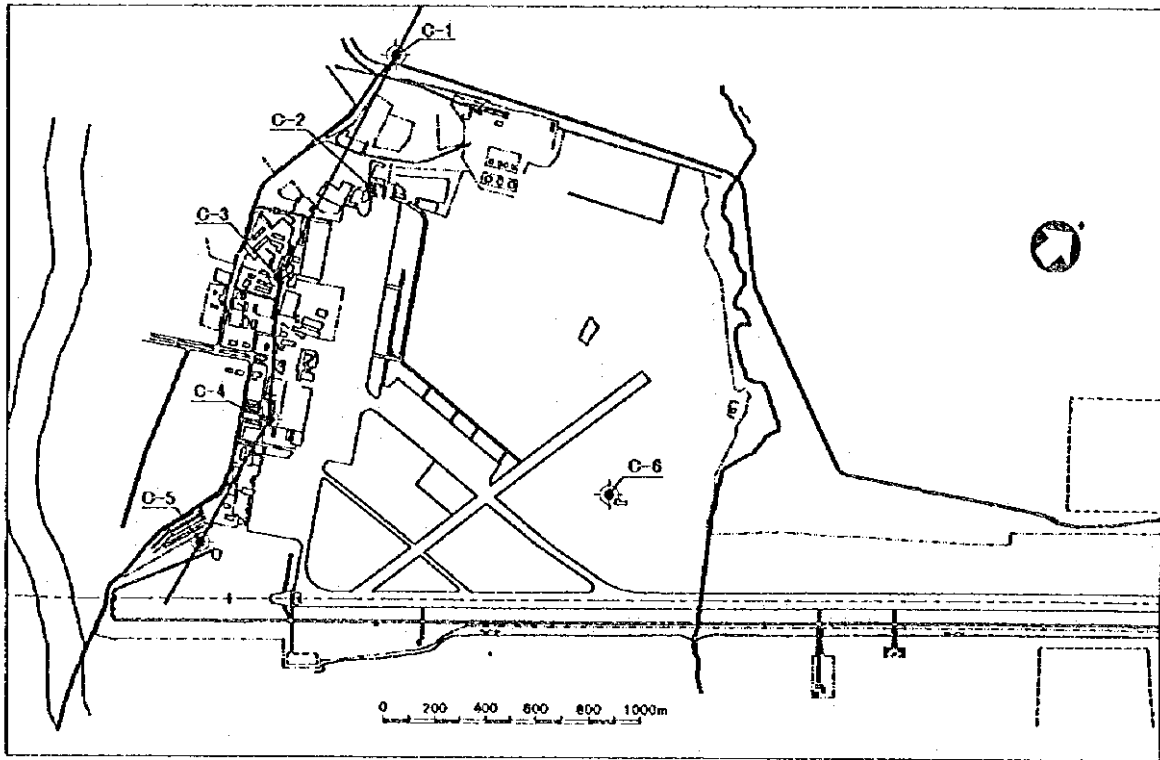


(a) Location map

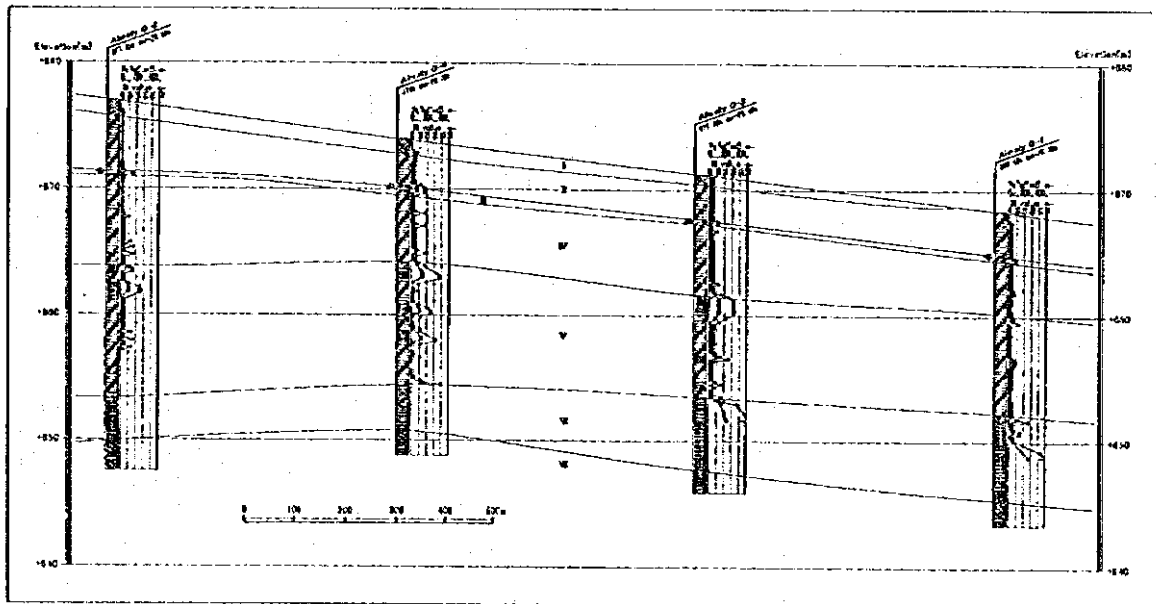


(b) Geological profile

Appendix-6.6 (6) Boring location map and geological profile (Almaty airport)

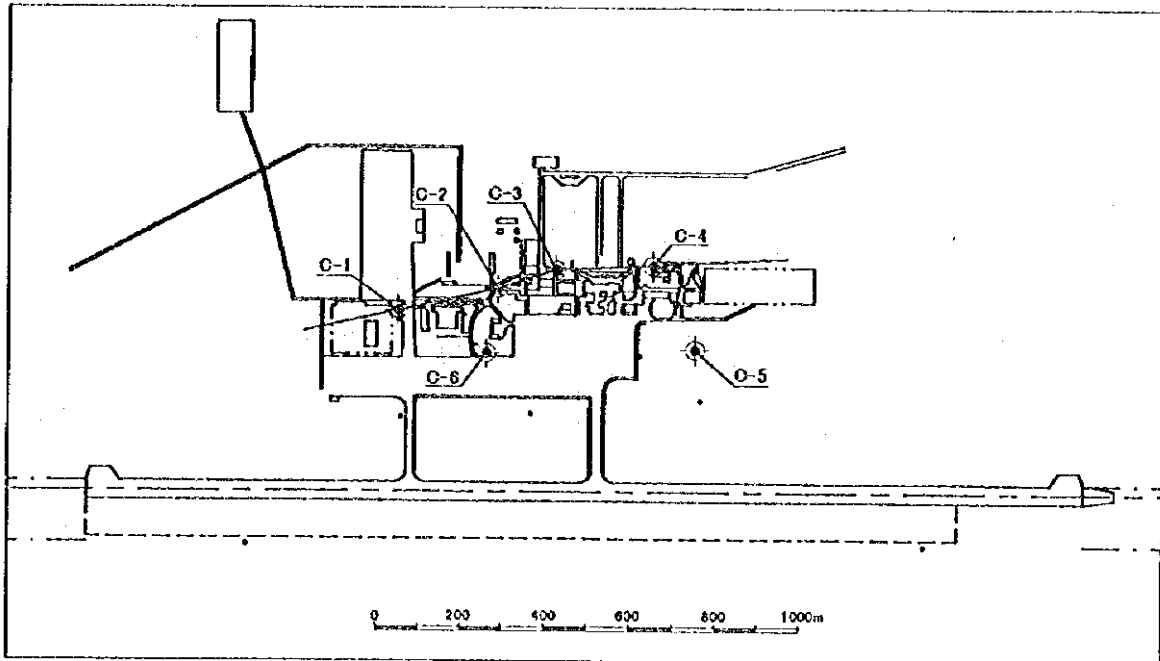


(a) Location map

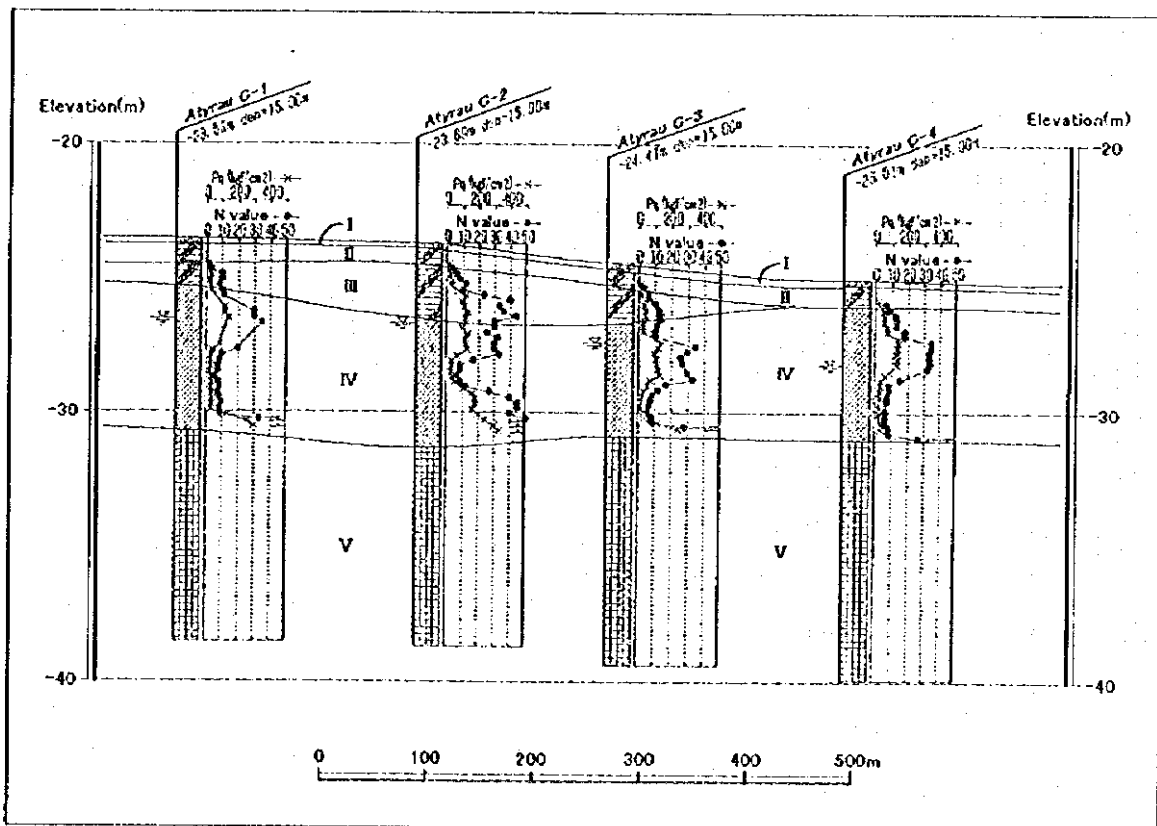


(b) Geological profile

Appendix-6.6 (7) Boring location map and geological profile (Atyrau airport)

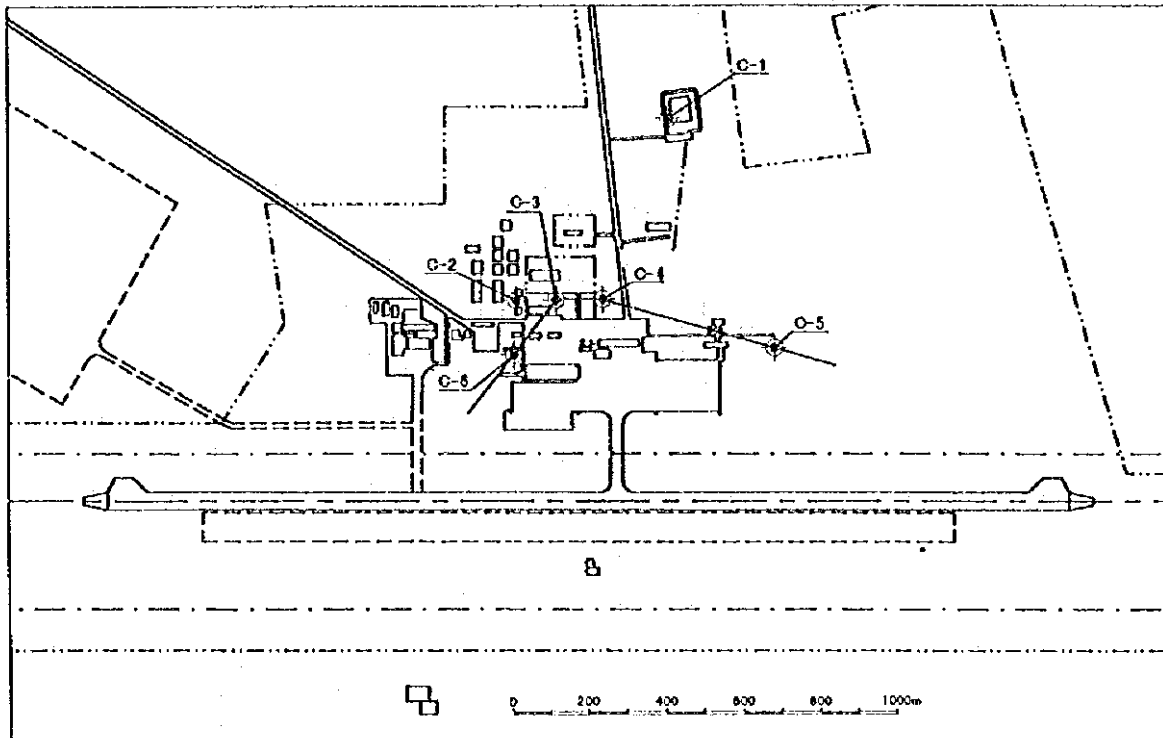


(a) Location map

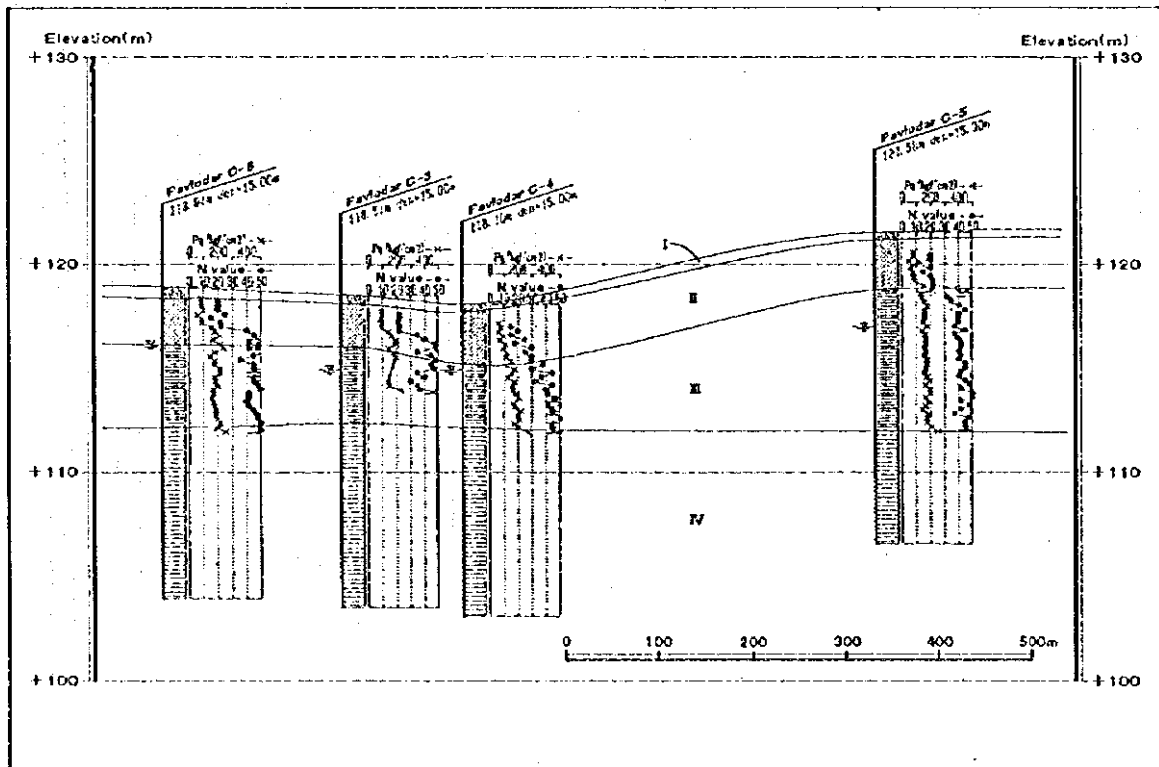


(b) Geological profile

Appendix-6.6 (8) Boring location map and geological profile (Pavlodar airport)



(a) Location map

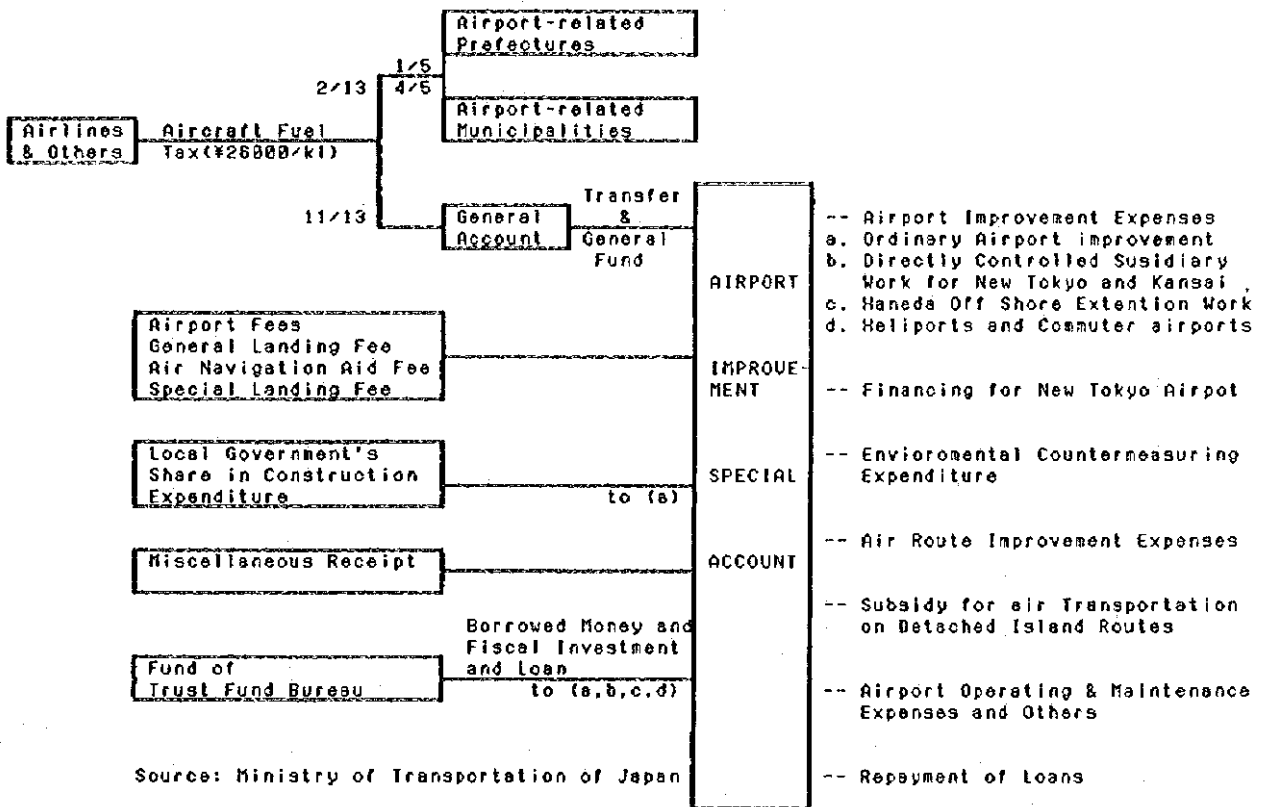


(b) Geological profile

Appendix-6.7.2

Airport Improvement Accounting System in Japan

(1) Mechanism of Airport Improvement Special Account (Figure)



Source: Ministry of Transportation of Japan

(2) System of Airport Facility Charges and Others

Name	Basis of Regulation	Purpose of Collection
Airport Facility Charges Ordinary Landing Fee Special Landing Fee Lighting Fee Parking Fee Hanger Fee	Established by Minister of MOT and announced in 1970. (MOT Ordinance No. 76 and applied since April 1, 1970)	The fees are regarded as price remuneration for the use of airport facilities. These collected money is appropriated for a part of revenues of the special account.
Air navigation aid facility charge	Announcement was made in 1971 (MOT Ordinance 238; applied since August 1, 1971)	This charge are price remuneration for radar, radio equipment and air traffic control and communication equipment. This collected money is appropriated for a part of the revenue of this account.
Aircraft fuel tax	Law of Aircraft Fuel (This law was established in 1972 as law 7 of the year 1972 and applied since Apr. 1, 1972)	11/13 of the expected tax revenue is appropriated for the source of revenue of this account to improve airports and air route facilities and to prevent aircraft noise. The remainder is transferred to prefectures and municipalities concerned. (Additional rule of "Law of Aircraft Transfer fuel tax".

Source: Ministry of Transportation in Japan

(3) Trends on Income and Expenditure of Airport Improvement Special Account
(¥100 million)

Items		1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
E X P E N D I T U R E	Investment on airport improvement	840	1003	1460	1687	1695	1824	2446	2631	2944	3806
	Investment on new Tokyo Airport	32	40	103	111	152	231	250	226	193	44
	Investment on Kansai Int'l Airport	48	150	(652)	0	0	231	270	518	516	334
	Investment on Protection of environment	632	410	407	368	379	301	272	273	330	340
	Investment on air routes improvements	88	113	113	120	164	215	217	282	237	340
	Sub-total	1640	1716	2093	2286	2621	2841	3703	3928	4038	3797
	Airports maintenance and operation	726	754	796	826	863	932	995	1073	1190	1239
	Reserve Funds	276	276	20	20	20	20	20	39	60	74
	Total	2642	2746	2899	3132	3504	3793	4718	5040	5288	5110
	R E V E N U E	Receipt from General Account (General Source of Revenue) (Aircraft fuel tax)	927	907	883	881	909	917	972	1104	1160
Receipt from Industrial Investment Sp. Account		-	-	-	119	113	108	98	9	-	-
Revenue from Airport Facilities Charges		1231	1282	1319	1390	1477	1568	1693	1802	1925	1988
(Landing Charge) (Special landing Charge)		331	342	352	372	398	428	458	491	532	521
(Air Navigation Aid Charge)		319	332	340	356	378	395	416	440	470	468
581		608	627	662	701	745	819	871	923	999	
Other Revenue		224	287	388	542	705	785	720	630	727	740
Borrowed Money		260	270	309	280	300	415	1235	1495	1468	1154
Total		2642	2746	2899	3132	3504	3793	4718	5040	5288	5110
Total (calculated)		2642	2746	2899	3132	3504	3793	4718	5040	5288	5110

Source: Ministry of Transportation in Japan

Note: In 1994, (Other Revenue)/(Revenue from Airport Facility Charges) = 0.372 (740/1988).

(4) Rates of National Burden and Subsidy for Airport Improvement

Classification	Administrator (AD) or Founder (FO)	National Burden or Subsidy	Facility	New Construction or Improvement (%)				Disaster Relief
				Ordinary	For Examples			
					Hokkaido	Detached Islands	Okinawa	
1st Class Airport	Minister of MOT	Burden	Primary Facilities	100	-	-	-	100
			Other Facilities	100	-	-	-	100
2nd Class Airport	Minister of MOT	Burden	Primary Facilities	100	-	-	95	80
			Other Facilities	100	-	-	100	100
	FO: Minister AD: Local Govern't	Burden	Primary Facilities	55	2/3	80	90	80
			Subsidy	Other Facilities	Less than 55	Less than 2/3	80	90
3rd Class Airport	Local Government	Burden	Primary Facilities	50	60	80	90	80
			Other Facilities	Less than 50	Less than 60	Less than 80	90	Less than 80

Note: Ministry of Transportation in Japan

Appendix-6.7.5 (1) Analyses on Airport Charges and Fees in Kazakhstan

A. Airport Facility Fees, Navigation Fees and Other Chargers in Kazakhstan

(A.1) Navigation Fee, Landing Fee, Passenger Fee, etc.
Based on Instruction 15/y, Order N54 and AIC 03/95

(1) Navigation Fee

Type of Flight			Air navigation fee			
Flight made by Kazakhstan aircraft	Domestic	Scheduled Non-scheduled	Within terminal area		Without terminal area	
			US\$	Airport Group	Weight	US\$
			30	I	up to 5t	8
			35	II	5< 10	12
			35	III	10< 30	18
				IV	30< 50	23
					50< 100	31
					100< 200	38
					200< 300	40
					300< 400	41
					above 400	43
Flight made by Kazakhstan aircraft	Intern'l	Scheduled, Non-scheduled	US\$4 per 1 ton of flight weight. (Example) Fee for 115 tons is \$460(115*4)		Weight	US\$
					up to 5t	8
					5< 10	12
					10< 30	18
					30< 50	23
					50< 100	31
					100< 200	38
					200< 300	40
					300< 400	41
					above 400	43
Flight made by foreign aircraft	Intern'l	Scheduled, Non-scheduled	US\$4 per 1 ton of flight weight.		weight	US\$
					up to 50t	30
					50< 100	41
					100< 200	51
					200< 300	53
					300< 400	54
					above 400	56

Source: Instruction 15/y and Order N54

Note: Air navigation fee is calculated by the following formula:

$$P = T \times (S : 100), \text{ where}$$

P: Amount of air navigation fee

T: Rate of the fee for air traffic services per 100 km of the great circle distance of the flight

S: The calculated distance is stated in round numbers up to whole decimals on the segments of the route, AIC areas of the republic of Kazakhstan. The great circle distance of flight on the segments of the route is reduced by 20km for each take-off and landing.

(2) Landing and Take-off Fee for Foreign Aircrafts

Type of Service	Rates and Fees (US\$)
Aircraft landing fee per 1 tonne of maximum aircraft weight	13
including:	
Landing and take-off in terminal area	9
Air navigation fee within terminal area	4

Note: Landing and take-off fee for aircrafts of CIS countries are compounded with many other elements as mentioned later.

(3) Passenger Fee

Classification			US\$ per passenger	
Passenger flying out by Kazakhstan aircraft	Domestic	Scheduled and Chartered flights are served in accordance with order N54	US\$	Airport group
			3.0	I
			3.5	II
			4.0	III
			4.5	IV
			for scheduled flight	
Passenger flying out by Kazakhstan aircraft	Intern'l	Scheduled and Chartered flights served in accordance with order N54	US\$	Airport group
			3.0	I
			3.5	II
			4.0	III
			4.5	IV
			for scheduled flight	
Passenger flying out by Foreign aircraft	Intern'l		US\$11.0*	

* Paragraph 1.1.7 of Order N54 provided that US\$11.0 is collected from air carriers to airport service for each passengers. However it is noted that this charge is included in "commercial service fee".

(A.2) Fees for Aircraft stipulated in Order N54(Fee for "foreign aircrafts")
(See footnote(*))

Type of Services	Rate & Fees (US\$)	Remarks
1.1.1 aircraft landing fee for 1 tonne maximum aircraft weight including: Landing & take-off fee Air navigation fee (within terminal area)	13 9 4	
1.1.2 Commercial service rates according to take-off weight:		
Less than 10 t.	112	50% discount is applicable for aircraft of CIS countries. No discount is applicable for foreign aircrafts including Kazakhstan aircrafts chartered by foreign companies and/or individuals.
from 11 t. to 25 t.	255	
from 26 t. to 35 t.	621	
from 36 t. to 55 t.	859	
56 t. to 70 t.	1213	
71 t. to 90 t.	1465	
91 t. to 115 t.	1736	
116 t. to 165 t.	2375	
166 t. to 200 t.	2695	
201 t. to 255 t.	3032	
256 t. to 305 t.	3873	
306 t. and over	4867	
This fee is established in accordance with the standard of National Air Transport Association about ground services(1994) which include the following types of services at airports: (1) Services to give guarantees and necessary information for air carrier's functions at airport. For example, the service to give the information concerning aircraft to all the interest parts. (2) Supervision of loading and unloading (3) Supervision of loading facilities (4) Information and other services for passengers and cargo. (5) Favourable and due processing of cargo and mail.		
1.1.3 Charges for aircraft technical maintenance depending on aircraft weight		
Less than 10 t.	30	This fee is paid to Air Technical Group or Avia-technical Bureau.
from 11 t. to 25 t.	90	
from 26 t. to 35 t.	217	
from 36 t. to 55 t.	301	
56 t. to 70 t.	425	
71 t. to 90 t.	512	
91 t. to 115 t.	607	
116 t. to 165 t.	822	
166 t. to 200 t.	943	
201 t. to 255 t.	1063	
256 t. to 305 t.	1356	
306 t. and over	1703	
The following types of services are included for the abovementioned maintenance fee. (6) Services to keep aircrafts at apron and ramp. (7) Cleaning inside of aircraft (8) Fuel filling and draining, etc. (9) Inspection and maintenance of aircrafts		
1.1.4 Charges for aircraft service depending on aircraft weight		
Less than 10 t.	17	This fee is paid to the airport.
from 11 t. to 25 t.	38	
from 26 t. to 35 t.	93	
from 36 t. to 55 t.	129	
56 t. to 70 t.	182	
71 t. to 90 t.	220	
91 t. to 115 t.	260	
116 t. to 165 t.	356	
166 t. to 200 t.	404	
201 t. to 255 t.	455	
256 t. to 305 t.	581	
306 t. and over	730	
The following types of services are included for the abovementioned maintenance fee. (6) Services to keep aircrafts at apron and ramp. (8) Fuel filling and draining, etc.		

Note(*): The mentioned charges are applied for landing of foreign aircrafts, CIS aircrafts and Kazair's aircraft fulfilling client requirements and chartered international flights required by foreign firms(physical persons) or leasing to foreign firm for air services of other companies of RK implementing flights for foreign firms or leasing by foreign firms in Kazair's airports.
For each landing or take-off implemented from 22:00 to 06:00 of local time 20% of the mentioned fees are charged additionally.

(A.3) Fees for Aircraft stipulated in Instruction 15/y

1.1 Fee for one made aircraft flight by group of Kezeir airport (with VAT 20%)

Name	Price by group of airports(US\$)			
	Group-1	Group-2	Group-3	Group-4
Fee for one made	110	120	120	130

Note: The mentioned fees is airdrone services including the normative time of aircraft stand, refueling of aircraft, power supply.

1.2 Fee for efficient maintenance of one made aircraft flight by airport group (with VAT 20%)

Name	Price by group of airports(US\$)			
	Group-1	Group-2	Group-3	Group-4
Fee for efficient maintenance of one aircraft flight	40	45	45	50

Note: The mentioned fee is the services on all the kinds of efficient services including landing and leaving aircraft service. That is the kinds of services being rendered concerning maintenance. For example, maintenance inspection, lineup inspection, finding different defects, malfunctions, and other services in order to make aircraft fly without technical malfunctions, unexpected situation due to aircraft function.

1.3 Fee for landing and leaving of one made aircraft flight by airport group (with VAT 20%)

Name	Price by group of airports(US\$)			
	Group-1	Group-2	Group-3	Group-4
Fee for landing and leaving of one made aircraft flight	20	25	25	30

Notes: The mentioned fee is the service type on landing and leaving aircraft, compound element of maintenance. This landing and leaving one made aircraft flight fee is included in the previous item 2.2. The inclusion or exclusion of this item depends on company.

1.4 Fee for airnavigation service of one made aircraft flight by airport group (with VAT 20%)

Name	Price by group of airports(US\$)			
	Group-1	Group-2	Group-3	Group-4
Fee for airnavigation of one made aircraft flight	30	35	35	40

1.5 Fee for one passenger service by airport group (with VAT 20%)

Name	Price by group of airports(US\$)			
	Group-1	Group-2	Group-3	Group-4
Fee for one passenger service	3	3.5	4	4.5

1.6 Fee for one ton of charged luggage, mail, cargo by airport group (with VAT 20%)

Name	Price by group of airports(US\$)			
	Group-1	Group-2	Group-3	Group-4
Fee for dispatching one ton of charged luggage, cargo & mail	3	3.5	4	4.5

List of Kazair Airports by Group

Group-1 0.5 - 1 mil. passengers/year	Group-2 0.1 - .5 mil. passengers/year	Group-3 0.05 - .1 mil. passengers/year	Group-4 Less than 0.05 passengers/year
Almaty Almaty training centre	Karaganda Ust-Kamenogorsk Shimkent Atyrau	Kustanay Aktau Akmoia Semipalatinsk Pavlodar Zhezkazgan	Burundai Uralsk Zhambul Kokchetau Petrovavlovsk Kzyl-Orda Balhash Taldy-Korgan Arkalyk Stenogorsk Aktyubinsk

Coefficients of Reducing Physical Aircraft Flight

Aircraft type		Adduced Coeffic't	Aircraft type		Adduced Coeffic't
Type	Weight Maximum take-off Ton		Type	Weight Maximum take-off Ton	
Il-96		10.90	B-747SP	315.7	14.50
Il-86	215	9.40	B757		6.30
Il-62		8.40	B-737-100		2.90
Il-62M	161.5	8.00	B-737-200		3.10
Il-76	190	6.40	B-737-300		3.90
Tu-154		5.70	B-737-400		4.30
Tu-154M	100	5.70	B-727-100		4.80
Tu-204		5.00	B-727-200		4.00
Tu-134	49	2.30	A-310-100		7.80
Il-18		3.10	A-310-200		8.30
Yak-42	56.5	2.50	A-310-300		8.90
Yak-40	16.1/17.2	1.00	Il-114	21	1.40
An-124		2.90	Il-14		1.10
An-22		19.70	D-410		8.20
An-74	36.5	2.30	Mi-26		1.80
An-72G		2.00	Mi-6		0.40
An-72P		2.00	Mi-10		0.40
An-12		2.60	Mi-8	12	0.30
An-24	21.0/21.8	1.20	Mi-4		0.10
An-30	22.1	1.30	Mi-2		0.05
An-26	24	1.40	Mi-1		0.05
An-32		1.40	Ka-26		0.05
An-8		1.50			
An-2	6.25	0.20			

Estimate Model for Adduced Coefficient

Weight Maximum take-off Ton (X)	Adduced Coeffic't (Y)	Regression Analysis	
215	9.40	Regression Output	
161.5	8.00	Constant	0.2748887
190	6.40	Std Err of Est.	0.7411204
100	5.70	R Squared	0.9699449
49	2.30	No. of Observation	15
56.5	2.50	Degree of Freedom	13
16.6	1.00	X Coefficient	0.0431404
36.5	2.30	Std Err of Coef.	0.0021862
21.4	1.20	Model:	
22.1	1.30	Y = 0.2748887 + 0.0431404*X	
24	1.40		
5.25	0.20		
315.7	14.50		
21	1.40		
12	0.30		

Estimated Adduced Coefficient by Model

Ton	Coef.	Ton	Coef.	Ton	Coef.	Ton	Coef.
10	0.71	100	4.59	200	8.90	300	13.22
11	0.75	101	4.63	201	8.95	301	13.26
12	0.79	102	4.68	202	8.99	302	13.30
13	0.84	103	4.72	203	9.03	303	13.35
14	0.88	104	4.76	204	9.08	304	13.39
15	0.92	105	4.80	205	9.12	305	13.43
16	0.97	106	4.85	206	9.16	306	13.48
17	1.01	107	4.89	207	9.20	307	13.52
18	1.05	108	4.93	208	9.25	308	13.56
19	1.09	109	4.98	209	9.29	309	13.61
20	1.14	110	5.02	210	9.33	310	13.65
21	1.18	111	5.06	211	9.38	311	13.69
22	1.22	112	5.11	212	9.42	312	13.73
23	1.27	113	5.15	213	9.46	313	13.78
24	1.31	114	5.19	214	9.51	314	13.82
25	1.35	115	5.24	215	9.55	315	13.86
26	1.40	116	5.28	216	9.59	316	13.91
27	1.44	117	5.32	217	9.64	317	13.95
28	1.48	118	5.37	218	9.68	318	13.99
29	1.53	119	5.41	219	9.72	319	14.04
30	1.57	120	5.45	220	9.77	320	14.08
31	1.61	121	5.49	221	9.81	321	14.12
32	1.66	122	5.54	222	9.85	322	14.17
33	1.70	123	5.58	223	9.90	323	14.21
34	1.74	124	5.62	224	9.94	324	14.25
35	1.78	125	5.67	225	9.98	325	14.30
36	1.83	126	5.71	226	10.02	326	14.34
37	1.87	127	5.75	227	10.07	327	14.38
38	1.91	128	5.80	228	10.11	328	14.42
39	1.96	129	5.84	229	10.15	329	14.47
40	2.00	130	5.88	230	10.20	330	14.51
41	2.04	131	5.93	231	10.24	331	14.55
42	2.09	132	5.97	232	10.28	332	14.60
43	2.13	133	6.01	233	10.33	333	14.64
44	2.17	134	6.06	234	10.37	334	14.68
45	2.22	135	6.10	235	10.41	335	14.73
46	2.26	136	6.14	236	10.46	336	14.77
47	2.30	137	6.19	237	10.50	337	14.81
48	2.35	138	6.23	238	10.54	338	14.86
49	2.39	139	6.27	239	10.59	339	14.90
50	2.43	140	6.31	240	10.63	340	14.94
51	2.48	141	6.36	241	10.67	341	14.99
52	2.52	142	6.40	242	10.71	342	15.03
53	2.56	143	6.44	243	10.76	343	15.07
54	2.60	144	6.49	244	10.80	344	15.12
55	2.65	145	6.53	245	10.84	345	15.16
56	2.69	146	6.57	246	10.89	346	15.20
57	2.73	147	6.62	247	10.93	347	15.24
58	2.78	148	6.66	248	10.97	348	15.29
59	2.82	149	6.70	249	11.02	349	15.33
60	2.86	150	6.75	250	11.06	350	15.37
61	2.91	151	6.79	251	11.10	351	15.42
62	2.95	152	6.83	252	11.15	352	15.46
63	2.99	153	6.88	253	11.19	353	15.50
64	3.04	154	6.92	254	11.23	354	15.55
65	3.08	155	6.96	255	11.28	355	15.59
66	3.12	156	7.00	256	11.32	356	15.63
67	3.17	157	7.05	257	11.36	357	15.68
68	3.21	158	7.09	258	11.41	358	15.72
69	3.25	159	7.13	259	11.45	359	15.76
70	3.29	160	7.18	260	11.49	360	15.81
71	3.34	161	7.22	261	11.53	361	15.85
72	3.38	162	7.26	262	11.58	362	15.89
73	3.42	163	7.31	263	11.62	363	15.93
74	3.47	164	7.35	264	11.66	364	15.98
75	3.51	165	7.39	265	11.71	365	16.02
76	3.55	166	7.44	266	11.75	366	16.06
77	3.60	167	7.48	267	11.79	367	16.11
78	3.64	168	7.52	268	11.84	368	16.15
79	3.68	169	7.57	269	11.88	369	16.19
80	3.73	170	7.61	270	11.92	370	16.24
81	3.77	171	7.65	271	11.97	371	16.28
82	3.81	172	7.70	272	12.01	372	16.32
83	3.86	173	7.74	273	12.05	373	16.37
84	3.90	174	7.78	274	12.10	374	16.41
85	3.94	175	7.82	275	12.14	375	16.45
86	3.98	176	7.87	276	12.18	376	16.50
87	4.03	177	7.91	277	12.22	377	16.54
88	4.07	178	7.95	278	12.27	378	16.58
89	4.11	179	8.00	279	12.31	379	16.63
90	4.16	180	8.04	280	12.35	380	16.67

Estimated Reduced Coefficient by Model

Ton	Coef.	Ton	Coef.	Ton	Coef.	Ton	Coef.
91	4.20	181	8.08	281	12.48	381	16.71
92	4.24	182	8.13	282	12.44	382	16.75
93	4.29	183	8.17	283	12.48	383	16.80
94	4.33	184	8.21	284	12.53	384	16.84
95	4.37	185	8.26	285	12.57	385	16.88
96	4.42	186	8.30	286	12.61	386	16.93
97	4.46	187	8.34	287	12.66	387	16.97
98	4.50	188	8.39	288	12.70	388	17.01
99	4.55	189	8.43	289	12.74	389	17.06
100	4.59	190	8.47	290	12.79	390	17.10
		191	8.51	291	12.83	391	17.14
		192	8.56	292	12.87	392	17.19
		193	8.60	293	12.92	393	17.23
		194	8.64	294	12.96	394	17.27
		195	8.69	295	13.00	395	17.32
		196	8.73	296	13.04	396	17.36
		197	8.77	297	13.09	397	17.40
		198	8.82	298	13.13	398	17.44
		199	8.86	299	13.17	399	17.49
		200	8.90	300	13.22	400	17.53

Appendix-6.7.5 (1) Analyses on Airport Charges and Fees in Kazakhstan

B. Comparison on Fees between Kazakhstan and Japan

Type of Fee	Kazakhstan (Airport Group-1)				Japan							
					Tokyo(Haneda)				New Tokyo(Narita)			
	B747 395t.	B767 136t.	B737 50t.	F-50 20t.	B747 395t.	B767 136t.	B737 50t.	F-50 20t.	B747 395t.	B767 136t.	B737 50t.	F-50 20t.
1. Domestic												
1.1 Landing												
Ordinary landing	-	-	-	-	-	1163	357	84	-	-	-	-
Special landing	-	-	-	-	-	1222	680	0	-	-	-	-
Total	433	154	61	29	-	2385	1037	84	-	-	-	-
1.2 Navigation												
within Terminal	606	215	85	40	-	-	-	-	-	-	-	-
without Terminal #	451	418	341	198	-	-	-	-	-	-	-	-
Total	1057	633	426	238	-	2254	829	234	-	-	-	-
Total of Landing and Air Navigat. (1.1+1.2)	1490	786	487	266	-	4639	1866	318				
1.3 Terminal Fee #H	2078	737	292	137	-	-	-	-				
Total of Landing, Air Nav. & Terminal Fee	3569	1523	778	403	-	4639	1866	318				
1.3.1 Parking Fee	-	-	-	-	-	103	40	19	-	-	-	-
1.4 Passenger Service Facility Fee (US\$/passenger)	4	4	4	4	-	0	0	0	-	-	-	-
1.5 Refuelling facility fee (US\$/ton) *	25	25	25	25	-	-	-	-	-	-	-	-
2. International												
2.1 Landing												
Ordinary landing	-	-	-	-	4062	1163	357	114	-	-	-	-
Special landing	-	-	-	-	2772	1279	804	0	-	-	-	-
Total	3555	1224	450	180	6834	1163	357	114	9029	3109	1143	457
2.2 Navigation #												
within Terminal	1580	544	200	80	-	-	-	-	-	-	-	-
without Terminal #	432	488	328	240	-	-	-	-	-	-	-	-
Total	2012	952	528	320	2057	2057	1783	1783	2057	2057	1783	1783
Total of Landing and Air Navigat. (2.1+2.2)	5567	2176	978	500	8891	3220	2140	1897	11086	5166	2926	2240
1.3 Terminal Fee #H	738	356	129	38	-	-	-	-				
Total of Landing, Air Nav. & Terminal Fee	6297	2532	1107	538	8891	3220	2140	1897	11086	5166	2926	2240
2.3.1 Parking fee	-	-	-	-	275	103	40	19	-	-	-	-
2.4 Passenger Service Facility Fee (US\$/passenger)	11	11	11	11	-	-	-	-	19	19	19	19
2.5 Refuelling facility fee (US\$/ton) *	25	25	25	25	-	-	-	-	44	44	44	44

Note(1): Calculation of the mentioned fees for Kazakhstan is basically made in accordance with the Instruction 15/Y, Order N54 and AIC 03/95(See Appendix- ~Appendix-). While the calculation of fees for Japan is fundamentally made in accordance with The Law of Airport Improvement Special Account(See Appendix- ~Appendix-).

Note(2): In Kazakhstan parking fee, lighting fee and refuelling fee are included in several classified rates of "commercial fees" and "technical fees" for which compound elements of services are included.

* : Based on the hearing in the field survey.

: Greater circular distances are assumed to be 1100km for domestic and 800km for international air route.

#H : Terminal fee for domestic means the fee for one made aircraft flight provided in the instruction 15/Y which includes normative time of aircraft stand and refuelling of aircraft, and power supply. While the fee for international(foreign) aircrafts means the fee stipulated in the order of N54 which includes the fee for services to keep aircrafts at apron and ramp and fuel filling and draining, etc.

Specification of Aircraft

Items	F-50	B737-200	B767-200	B747-400
Maximum take-off weight(kg)	19,950	49,440	136,078	394,625
Maximum cruising speed(km/h)	522	841	Mach 0.8	Mach .85
Maximum cruising range(km)	2,055	3,815	5,860	13,600
Maximum take-off run(m)	1,200	1,676	1,798	2,134
No. of seats	50	120	230	400

Appendix-6.7.5 (1) Analyses on Airport Charges and Fees in Kazakhstan

C. Comparison on Fees among Major Countries

-- International air routes -- (US\$)

Airports	Landing Fee		Terminal Fee	Air Route Fee	Air-Nav. Fee	Grand Total
	B-747-400 (395 ton) (1)	DC-10-40 (252 ton)	B-747-400 (395 ton) (2)	B-747-400 (395 ton) (3)	B-747-400 (395 ton) (4)	B-747-400 (395 ton) (1+2+3+4)
Charles De Gaulle	3874	2375	1352	351	-	5577
Frankfurt	4441	2829	962	588	-	5963
Heathrow	558	558	801	552	-	1711
Kingsford Smith	2989	1988	1930	2841	-	6880
New Delhi	2655	1622	128	695	-	3377
Jakarta	2029	1261	-	467	-	2497
Mexico	1043	665	33	1134	-	2211
	-	-	27	1134	-	1161
Mexico Total	1043	665	60	2269	-	3972
Manila	1709	1073	-	145	-	1854
Hong Kong	2691	2005	-	383	-	3074
New Tokyo(Narita)	9029	5760	-	-	2057	11886
Tokyo(Haneda)	6834	4472	-	-	2057	8891

Note(1): Yen/US\$ = 105

Note(2): Terminal and air route fees of Mexico are divided into for landing and take-off.

Source: MOT in Japan

Appendix-6.7.5 (I) Analyses on Airport Charges and Fees in Kazakhstan

D. Airport Facility Fees, Navigation Fees and Other Charges in Japan

(1) Airport Facility Charges

Items of Charges		Rates	Working Rules
Air Route			
Ordinary Landing Fee	International	Maximum take-off weight(ton) ~ 25 ¥600/ton 26 ~ 100 ¥900/ton 101 ~ 200 ¥1100/ton 201 ~ ¥1200/ton	Ordinary landing fees are levied for each landing of aircraft of which amount is obtained in order of the classified rates shown on the left hand. Some examples of calculation are shown in the following tables. Any odd sum less than 1 ton is regarded as 1 ton here and hereinafter.
	Domestic	Less than 25 tons : Less than 1 ton, uniformly ¥350 2 ~ 6 : Uniformly ¥350 7 ~ 25 : ¥500/ton More than 25 ton : More than 25 ton : ¥600/ton 26 ~ 100 ¥900/ton 101 ~ 200 ¥1100/ton 201 ~ ¥1200/ton	
Special Landing Fee		(a) ¥500 x weight tons (b) ¥3260 x Noise Value: (EPNdB-33EPNdB)	Special landing fees are levied for each landing of jet airplane at the sum of (a)+(b) shown on the left hand.
Lighting Fee (at night)		5% of the ordinary landing fee	Lighting fee at night is levied for each take-off and landing at the rate shown on the left hand. (Night time means the hours from 1900 to 500 during April to September and 1700 to 700 during October to March.
Parking Fee		Less than 23 tons : ~ 3. Uniformly ¥810 4 ~ 6. Uniformly ¥810 7 ~ 23: ¥30/ton More than 24 tons : Less than 25 tons: ¥90/ton 26 ~ 100 ¥80/ton 101 ~ ¥70/ton	Parking Fee is levied for every 24 hours (those less than 24 shall be regarded as 24 hours), which is calculated in order of the classified rates shown on the left hand. However, any parking for less than 6 hours is free from charge. Examples of calculation are shown in the following.

Note (1): Regarding ordinary landing fees, discount rates are applied for Okinawa and detached islands.

Note (2): Excise tax is levied at the rate of 1.03 for the abovementioned respective amount of fees.

1.1 Examples of calculation of Ordinary Landing Fee

Unit Price(¥)	International		Domestic	
	tons	Fee (Yen)	Unit Price(¥)	Fee (Yen)
600	1	600	350	350
600	10	6000	350	700
600	20	12000	350	700
600	25	15000	350	700
900	26	15900	350	700
900	30	19500	350	700
900	40	28500	500	3020
900	50	37500	500	3020
900	52	39300	500	3020
900	100	82500	500	3020
1100	101	83600	900	37500
1100	110	93500	900	50100
1100	127	112200	900	82500
1100	136	122100	1100	112200
1100	160	148500	1100	122100
1100	180	170500	1100	192500
1100	200	192500	1200	194900
1200	201	193700	1200	253300
1200	202	194900	1200	253300
1200	252	254900		
1200	372	398900		
1200	395	426500		

Note(1): Example of calculation for aircraft weight of 52 tons
 $25 \cdot 600 + (52 - 25) \cdot 900 = 39,300$

Note(2): US\$/Yen = 105

Note(2): Excise tax 3% is additionally charged.

(1.2) Examples of calculation of Special Landing Fee

(a) Domestic

Aircraft Type	Maximum Take-off Weight (Ton)	EPNdB	Special Landing Fee (Yen)	Special Landing Fee (US\$)
B727-200	79	100	101240	964
B737-200	50	96	71380	680
B747SR-100	259	102	212160	2021
B767-200	127	94	109520	1043
DC-9-41	52	95	69280	660
DC-9-81	64	92	66460	633
DC-10-40	202	102	179100	1706
MD-11	274	100	214340	2041
A300B2K-3C	137	98	128360	1222

Note (1): US\$/Yen = 105

Note (2): Excise tax 3% is charged additionally.

(b) International

Aircraft Type	Maximum Take-off Weight (Ton)	EPNdB	Special Landing Fee (Yen)	Special Landing Fee (US\$)
B747-400	395	102	291040	2772
B747-300	372	106	290740	2769
DC-10-40	252	104	214620	2044

Note (1): US\$/Yen = 105

Note (2): Excise tax 3% is charged additionally.

(c) Estimated Special Landing Fee -- International
Assuming EPNdB equal to 1000

Aircraft Type	Maximum Take-off Weight (Ton)	EPNdB	Special Landing Fee (Yen)	Special Landing Fee (US\$)
-	395	100	284520	2710
-	372	100	271180	2583
-	252	100	201580	1920
-	136	100	134300	1279
-	50	100	84420	804

Note (1): US\$/Yen = 105

Note (2): Excise tax 3% is charged additionally.

(1.3) Examples of calculation of
Parking Fee

Unit Price	Weight (tons)	Fee (Yen)	Fee (US\$)	Remarks
Less than 3 tons :				
810	1	810	8	Uniformly ¥810
810	2	810	8	
810	3	810	8	
810	4	1620	15	Uniformly ¥810
810	5	1620	15	
810	6	1620	15	
30	7	1650	16	¥30/ton
30	20	2040	19	
30	23	2130	20	
More than 24 tons :				
Less than 25 tons				
90	25	2250	21	¥90/ton
80	26	2330	22	¥80/ton
80	50	4250	40	
80	100	8250	79	
70	101	8320	79	¥70/ton
70	136	10770	103	
70	250	18750	179	
70	395	28900	275	

Note (1) : US\$/Yen = 105

Note (2) : Excise tax 3% is additionally charged.

(2) Air Navigation Fee

(Yen)

1 International Flight				
Classification				Fixed Amount
Maximum take-off weight(ton):		Less than 15		¥120
		Over 15 and Less than 100		¥187,200
		Equal to and over 100		¥216,000
2 Domestic Flight				
Aircraft User	Type of Flight	Maximum Take-off Weight(ton)	Flying Distance (km)	
Scheduled & nonscheduled air transport operators	Other than Round Flights	Less than 15		¥120
		More than 15	Less than 400	¥990/ton
			More than 400 & less than 800	¥1230/ton
			More than 800	¥1740/ton
	Round Flight	Less than 15		¥120
		More than 15		¥810/ton
Other Airplane				¥120

Note(1) Excise tax 3% is additionally charged.

(2.1) Examples of calculation of Air Navigation Fee

International Flight				Domestic Flight			
Tons	Rate(¥)	Fee(¥)	Fee(US\$)	Tons	Distance	Rate(Fee(¥)	Fee(US\$)
5	120	120	1	5		120	1
10	120	120	1	10		120	1
15	120	187200	1783	15		120	1
20	187200	187200	1783	16	300	990	151
50	187200	187200	1783	16	600	1230	187
100	187200	187200	1783	272.2	402	1230	3198
101	216000	216000	2057	272.2	822	1740	4524
136	216000	216000	2057				
300	216000	216000	2057				
395	216000	216000	2057				

Note(1): US\$/Yen = 105

Note(2): Excise tax 3% is additionally charged.

(3) Airport Facilities Service Charges of -- Narita and Kansai International Airports --

	Narita International Airport	Kansai International Airport	Remarks
Landing Fee (including equivalent part to Special Landing Fee)	Maximum Take-off Weight(ton): ¥2400/ton	Maximum Take-off Weight(ton): Int'l: 2400/ton Domestic: 1900/ton	Levied for each landing of aircraft Any odd sum less than 1 ton is regarded as 1 ton.
Parking Fee	¥180/ton	¥200/ton	Levied for each parking for 24 hours. However, parking for less than 6 hours is free from charge.
Passenger Service Facilities Charge (P.S.F.C.)	For departing Passengers Adult: ¥2000/person Children(more than 2 and less than 12 years old.): ¥1000/person		National guests and transit passengers are exempted.
Fuel Supply Service Facility Charge	¥4.59/liter	¥4.59/liter	

Appendix-6.7.5 (2) Fundamental Indices for Economic and Financial Analyses

A. Fundamental Indices of Air Transportation

Airport Year	Akola					Aktau				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
1. Annual Air Pax Movements										
1.1 No. of Air Passengers (Depart. + Arrival) (000)										
- Domestic	67	113	155	215	369	186	251	318	404	637
- Inter-CIS	47	58	77	103	164	68	74	98	133	233
- International (Foreign)	41	54	76	105	166	35	44	59	76	124
- Total	154	225	308	424	700	282	369	475	613	993
1.2 Air Passenger-km (Depart. + Arrival)										
- Domestic	66	95	129	177	295	282	401	503	634	981
- Inter-CIS	108	134	178	240	383	114	139	185	251	441
- International (Foreign)	133	177	251	347	547	103	127	167	216	345
- Total	307	406	558	764	1,225	499	667	856	1,101	1,768
1.3 Annual Pax after Change of Route System										
- Domestic	-	-	1,001	-	2,315	-	-	430	-	845
- International (Foreign)	-	-	237	-	1,294	-	-	56	-	225
- Total	154	-	1,237	-	3,609	281	-	486	-	1,070
2. Annual Cargo Movement										
2.1 Tons of Air Cargo (Ton) (Depart. + Arrival)										
- Domestic	318	521	710	982	1,675	814	1,087	1,374	1,746	2,745
- Inter-CIS	189	233	311	417	665	405	494	657	891	1,559
- International	1,879	2,539	3,661	5,130	8,216	1,663	2,095	2,813	3,679	6,039
- Total	2,385	3,293	4,682	6,529	10,557	2,882	3,676	4,845	6,316	10,344
2.2 Air Cargo Ton-km (Depart. + Arrival)										
- Domestic	308	443	598	819	1,361	1,442	1,960	2,455	3,088	4,765
- Inter-CIS	436	541	720	970	1,548	763	931	1,241	1,686	2,991
- International (Foreign)	6,854	9,204	13,179	18,360	29,116	4,748	5,909	7,857	10,184	16,450
- Total	7,599	10,188	14,497	20,149	32,026	6,952	8,800	11,552	14,958	24,175
2.3 Annual Cargo after Change of Route System (Depart. + Arrival) (Ton)										
- Domestic	-	-	12,560	-	29,936	-	-	5,265	-	9,871
- International	-	-	8,866	-	31,305	-	-	377	-	6,371
- Total	2,385	-	21,426	-	61,241	2,882	-	5,642	-	16,242
3.1 Aircraft Movements at Peak day (Bothway)										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- NJ (B767)	-	-	6	-	20	-	-	0	-	4
- SJ (B737)	-	-	46	-	122	-	-	20	-	40
- TP (F50)	-	-	-	-	0	-	-	0	-	2
3.2 Annual Aircraft Movements										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- NJ (B767)	-	-	1,900	-	6,600	-	-	0	-	1,320
- SJ (B737)	-	-	15,188	-	40,260	-	-	6,800	-	13,200
- TP (F50)	-	-	0	-	2,640	-	-	0	-	660
- Total	-	-	17,100	-	49,500	-	-	6,600	-	15,180
3.2(1) CIS Routes										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- NJ (B767)	-	-	1,490	-	5,031	-	-	0	-	1,155
- SJ (B737)	-	-	11,420	-	30,688	-	-	5,785	-	11,555
- TP (F50)	-	-	0	-	2,012	-	-	0	-	578
- Total	-	-	12,909	-	37,731	-	-	5,785	-	13,288
3.2(2) Foreign Routes										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- NJ (B767)	-	-	491	-	1,569	-	-	0	-	165
- SJ (B737)	-	-	3,761	-	9,572	-	-	815	-	1,645
- TP (F50)	-	-	0	-	628	-	-	0	-	82
- Total	-	-	4,251	-	11,769	-	-	815	-	1,892
4. Annual Fuel Consumption										
- Kilo litre/Peak day	-	-	221	-	623	-	-	70	-	181
- Annual Consumption (000)	-	-	73	-	206	-	-	23	-	60

Fundamental Indices for Economic and Financial Analysis

(2)

Year	Aktyubinsk					Almaty				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
1. Annual Air Pax Movements										
1.1 No. of Air Passengers (Depart. + Arrival) (000)										
- Domestic	50	66	86	115	199	711	890	1,139	1,474	2,354
- Inter-CIS	14	18	24	33	58	598	714	857	1,027	1,414
- International (Foreign)	5	6	8	11	17	306	404	522	663	1,006
- Total	69	90	117	159	273	1,615	2,008	2,518	3,164	4,775
1.2 Air Passenger-km (Depart. + Arrival)										
- Domestic	79	101	128	168	274	765	946	1,207	1,557	2,473
- Inter-CIS	21	27	36	50	90	1,881	2,241	2,690	3,219	4,419
- International (Foreign)	13	17	22	29	45	1,028	1,360	1,757	2,227	3,372
- Total	114	145	187	247	409	3,674	4,547	5,653	7,003	10,264
1.3 Annual Pax after Change in Air Route System										
- Domestic	-	-	117	-	269	-	-	2,568	-	3,374
- International (Foreign)	-	-	-	-	61	-	-	2,163	-	3,057
- Total	69	-	117	-	330	1,615	-	4,731	-	6,431
2. Annual Cargo Movement										
2.1 Tons of Air Cargo (Ton) (Depart. + Arrival)										
- Domestic	250	324	428	561	951	3,169	3,966	5,062	6,542	10,418
- Inter-CIS	117	148	196	270	480	2,897	3,454	4,149	4,974	6,846
- International	227	302	393	516	824	14,290	19,186	25,117	32,208	49,682
- Total	593	774	1,009	1,347	2,256	20,355	26,606	34,328	43,724	66,945
2.2 Air Cargo Ton-km (Depart. + Arrival)										
- Domestic	385	491	623	815	1,314	3,529	4,350	5,542	7,136	11,290
- Inter-CIS	176	226	300	417	747	9,109	10,853	13,019	15,583	21,393
- International (Foreign)	626	822	1,067	1,382	2,173	55,133	73,319	95,133
- Total	1,186	1,539	1,991	2,614	4,234	67,770	88,521
2.3 Annual Cargo after Change of Route System (Depart. + Arrival) (Ton)										
- Domestic	-	-	1,213	-	2,544	-	-	23,731	-	25,143
- International	-	-	-	-	385	-	-	46,096	-	69,784
- Total	593	-	1,213	-	2,930	20,355	-	69,827	-	94,926
3.1 Aircraft Movements at Peak day (Bothway)										
- LJ (B747)	n.a	-	1,320	-	5,280	n.a	-	57,320	-	74,580
- NJ (B767)	-	-	0	-	0	-	-	8	-	24
- SJ (B737)	-	-	0	-	2	-	-	28	-	36
- TP (F50)	-	-	4	-	14	-	-	160	-	162
- Total	-	-	0	-	0	-	-	8	-	4
3.2 Annual Aircraft Movements										
- LJ (B747)	n.a	-	0	-	0	-	-	2,640	-	7,920
- NJ (B767)	-	-	0	-	660	-	-	9,240	-	11,880
- SJ (B737)	-	-	1,320	-	4,620	-	-	52,000	-	63,460
- TP (F50)	-	-	0	-	0	-	-	2,640	-	1,320
- Total	-	-	1,320	-	5,280	-	-	67,320	-	74,580
3.2(1) CIS Routes										
- LJ (B747)	n.a	-	0	-	0	-	-	2,093	-	6,251
- NJ (B767)	-	-	0	-	619	-	-	7,324	-	9,377
- SJ (B737)	-	-	1,228	-	4,333	-	-	41,853	-	42,194
- TP (F50)	-	-	0	-	0	-	-	2,093	-	1,042
- Total	-	-	1,228	-	4,952	-	-	53,363	-	58,864
3.2(2) Foreign Routes										
- LJ (B747)	n.a	-	0	-	0	-	-	547	-	1,669
- NJ (B767)	-	-	0	-	41	-	-	1,916	-	2,503
- SJ (B737)	-	-	92	-	287	-	-	10,947	-	11,266
- TP (F50)	-	-	0	-	0	-	-	547	-	278
- Total	-	-	92	-	328	-	-	13,957	-	15,716
4. Annual Fuel Consumption										
- Kilo litre/Peak day	-	-	15	-	50	-	-	1,170	-	1,517
- Annual Consumption (000)	-	-	5	-	17	-	-	386	-	501

Fundamental Indices for Economic and Financial Analysis

(3)

Airport Year	Atyrau					Pavlodar				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
1. Annual Air Pax Movements										
1.1 No. of Air Passengers (Depart. + Arrival) (000)										
- Domestic	188	145	187	244	403	98	184	243	328	572
- Inter-CIS	43	53	68	88	140	58	61	77	100	159
- International (Foreign)	16	21	28	36	59	18	12	16	21	32
- Total	167	219	283	368	602	157	257	336	448	764
1.2 Air Passenger-km (Depart. + Arrival)										
- Domestic	119	174	224	291	475	106	206	269	357	608
- Inter-CIS	68	83	106	137	221	127	154	195	253	405
- International (Foreign)	58	76	101	130	210	31	40	52	66	102
- Total	245	333	431	559	906	264	399	516	676	1,115
1.3 Annual Pax after Change in Air Route System										
- Domestic	-	-	242	-	519	-	-	292	-	675
- International (Foreign)	-	-	41	-	83	-	-	44	-	89
- Total	167	-	283	-	602	157	-	336	-	764
2. Annual Cargo Movement										
2.1 Tons of Air Cargo (Ton) (Depart. + Arrival)										
- Domestic	687	885	1,837	1,344	2,193	478	934	1,238	1,655	2,877
- Inter-CIS	91	111	142	184	294	115	139	177	229	366
- International	741	987	1,329	1,746	2,882	449	578	754	964	1,505
- Total	1,439	1,903	2,508	3,274	5,370	1,034	1,651	2,161	2,848	4,747
2.2 Air Cargo Ton-km (Depart. + Arrival)										
- Domestic	593	878	1,128	1,458	2,363	589	1,086	1,413	1,873	3,167
- Inter-CIS	143	173	221	288	464	294	355	452	582	931
- International (Foreign)	2,802	3,697	4,943	6,463	10,544	1,650	2,109	2,724	3,464	5,348
- Total	3,538	4,748	6,293	8,209	13,371	2,453	3,550	4,589	5,918	9,446
2.3 Annual Cargo after Change of Route System (Depart. + Arrival) (Ton)										
- Domestic	-	-	2,249	-	4,815	-	-	1,554	-	3,339
- International	-	-	86	-	173	-	-	102	-	205
- Total	1,439	-	2,334	-	4,987	1,034	-	1,656	-	3,544
3.1 Aircraft Movements at Peak day (Bothway)										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- MJ (B767)	-	-	0	-	2	-	-	0	-	4
- SJ (B737)	-	-	12	-	24	-	-	14	-	28
- TP (F50)	-	-	0	-	2	-	-	0	-	0
3.2 Annual Aircraft Movements										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- MJ (B767)	-	-	0	-	660	-	-	0	-	1,320
- SJ (B737)	-	-	3,960	-	7,920	-	-	4,620	-	9,240
- TP (F50)	-	-	0	-	660	-	-	0	-	0
- Total	-	-	3,960	-	9,240	-	-	4,620	-	10,560
3.2(1) CIS Routes										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- MJ (B767)	-	-	0	-	595	-	-	0	-	1,264
- SJ (B737)	-	-	3,569	-	7,145	-	-	4,400	-	8,849
- TP (F50)	-	-	0	-	595	-	-	0	-	0
- Total	-	-	3,569	-	8,336	-	-	4,400	-	10,113
3.2(2) Foreign Routes										
- LJ (B747)	n.a	-	0	-	0	-	-	0	-	0
- MJ (B767)	-	-	0	-	65	-	-	0	-	56
- SJ (B737)	-	-	391	-	775	-	-	220	-	391
- TP (F50)	-	-	0	-	65	-	-	0	-	0
- Total	-	-	391	-	904	-	-	220	-	447
4. Annual Fuel Consumption										
- Kilo litre/Peak day	-	-	37	-	80	-	-	41	-	117
- Annual Consumption (000)	-	-	12	-	26	-	-	14	-	39

Note A.

Indices of air passenger movements

Airport Year	Akmola					Aktau				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
(1) No. of Air Passengers (Depart. + Arrival) (000)										
- Domestic	67	113	155	215	369	186	251	318	404	637
- Inter-CIS	47	58	77	103	164	60	74	98	133	233
CIS Total	114	171	232	318	534	246	325	416	537	869
Index(2005=1.0)	0.491	0.738	1.000	1.373	2.303	0.592	0.781	1.000	1.291	2.089
International (Foreign)	41	54	76	105	166	35	44	59	76	124
Index(2005=1.0)	0.531	0.706	1.000	1.388	2.181	0.602	0.753	1.000	1.308	2.113
Total	154	225	308	424	700	282	369	475	613	993
Index(2005=1.0)	0.501	0.730	1.000	1.375	2.272	0.593	0.778	1.000	1.292	2.092
(2) No. of Air Passengers After Change in Air Route Network (Depart. + Arrival) (000)										
Total Passengers	154	696	1,237	2,423	3,609	281	384	486	778	1070
Index(2005=1.0)	0.124	0.562	1.000	1.959	2.918	0.578	0.789	1.000	1.601	2.202

Airport Year	Aktyubinsk					Almaty				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
(1) No. of Air Passengers (Depart. + Arrival) (000)										
- Domestic	58	66	86	115	199	711	890	1,139	1,474	2,354
- Inter-CIS	14	18	24	33	58	598	714	857	1,027	1,414
CIS Total	64	84	109	148	256	1,309	1,604	1,996	2,501	3,769
Index(2005=1.0)	0.590	0.765	1.000	1.354	2.348	0.656	0.804	1.000	1.253	1.888
International (Foreign)	5	6	8	11	17	306	404	522	663	1,006
Index(2005=1.0)	0.585	0.768	1.000	1.385	2.073	0.586	0.774	1.000	1.269	1.927
Total	69	90	117	159	273	1,615	2,008	2,518	3,164	4,775
Index(2005=1.0)	0.589	0.765	1.000	1.351	2.329	0.641	0.797	1.000	1.256	1.996
(2) No. of Air Passengers After Change in Air Route Network (Depart. + Arrival) (000)										
Total Passengers	69	93	117	224	330	1615	3,173	4731	5,581	6431
Index(2005=1.0)	0.590	0.795	1.000	1.910	2.921	0.341	0.671	1.000	1.180	1.359

Airport Year	Atyrau					Pavlodar				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
(1) No. of Air Passengers (Depart. + Arrival) (000)										
- Domestic	108	145	187	244	403	98	184	243	328	572
- Inter-CIS	49	53	68	88	140	50	61	77	100	159
CIS Total	151	198	255	332	543	148	245	320	428	731
Index(2005=1.0)	0.593	0.776	1.000	1.301	2.129	0.462	0.765	1.000	1.336	2.286
International (Foreign)	16	21	28	36	59	10	12	16	21	32
Index(2005=1.0)	0.577	0.756	1.000	1.301	2.111	0.600	0.769	1.000	1.281	2.019
Total	167	219	283	368	602	157	257	336	448	764
Index(2005=1.0)	0.592	0.774	1.000	1.301	2.128	0.468	0.765	1.000	1.333	2.273
(2) No. of Air Passengers After Change in Air Route Network (Depart. + Arrival) (000)										
Total Passengers	167	225	283	443	602	157	247	336	550	764
Index(2005=1.0)	0.590	0.795	1.000	1.564	2.127	0.467	0.734	1.000	1.637	2.274

Appendix-6.7.5 (2) Fundamental Indices for Economic and Financial Analyses

B. Average Passenger-Km and Average Cargo-Km

	Average Passenger-km					Average Ton-km				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
Almaty to/from										
Domestic	1076.8	1062.2	1059.7	1056.3	1050.2	1113.7	1096.8	1095.0	1090.7	1083.7
C.I.S	3143.3	3141.1	3137.7	3133.3	3124.9	3144.5	3141.9	3137.7	3133.1	3124.9
Foreign	3362.1	3366.1	3364.7	3361.0	3350.8	3858.1	3821.6	3787.6	3756.5	3706.5
Total	2275.4	2264.5	2244.9	2213.4	2149.5	3329.3	3327.2	3312.0	3286.7	3238.9
West Kasak. to/from										
Domestic	1642.9	1639.0	1595.6	1546.3	1459.1	1631.0	1631.8	1587.7	1540.2	1451.1
C.I.S	1258.7	1263.7	1269.2	1271.5	1273.1	1269.1	1256.9	1266.5	1261.4	1272.1
Foreign	2981.2	2860.2	2838.2	2822.7	2783.3	2875.2	2828.4	2804.3	2767.9	2718.9
Total	1734.8	1780.8	1652.6	1598.1	1506.8	2238.5	2131.2	2086.1	2021.3	1907.5
Aktyubinsk to/from										
Domestic	1568.0	1533.3	1499.6	1457.5	1380.5	1541.1	1513.9	1483.6	1452.9	1380.7
C.I.S	1517.6	1523.3	1531.1	1541.2	1555.7	1510.8	1530.0	1533.9	1543.2	1555.6
Foreign	2739.8	2729.1	2697.5	2674.4	2640.1	2752.2	2722.8	2714.2	2679.9	2635.6
Total	1639.7	1615.7	1589.8	1557.0	1496.0	1999.1	1988.8	1972.9	1940.8	1876.5
Karaganda to/from										
Domestic	873.7	764.8	760.2	754.2	744.8	847.9	771.3	765.4	761.8	755.7
C.I.S	2495.8	2496.2	2496.5	2497.4	2498.7	2495.4	2495.3	2495.1	2498.8	2499.1
Foreign	3238.0	3237.1	3230.6	3223.3	3209.1	3636.1	3610.3	3587.3	3562.3	3527.0
Total	1916.5	1743.5	1722.7	1690.8	1625.8	2955.3	2851.0	2833.9	2797.8	2729.0
Kustanay to/from										
Domestic	1493.9	1345.5	1332.7	1316.1	1283.3	1502.5	1318.0	1310.6	1293.2	1257.6
C.I.S	1822.1	1824.6	1827.5	1831.9	1839.2	1815.4	1826.6	1825.3	1829.3	1840.8
Foreign	3443.0	3434.5	3423.2	3413.4	3394.0	3699.8	3676.0	3650.3	3629.6	3591.4
Total	2160.3	2045.1	2030.3	2003.1	1944.4	3277.8	3197.1	3173.6	3141.5	3072.1
Atyrau to/from										
Domestic	1104.1	1205.3	1200.0	1194.9	1180.7	976.8	1090.7	1088.5	1085.0	1077.2
C.I.S	1555.6	1557.3	1560.0	1564.0	1571.3	1576.0	1554.3	1557.1	1569.0	1576.7
Foreign	3626.1	3611.0	3600.8	3587.8	3562.3	3779.0	3745.2	3719.9	3700.8	3658.5
Total	1463.4	1522.3	1523.6	1519.1	1504.9	2458.3	2494.5	2509.4	2507.5	2490.1
East Kazak. to/from										
Domestic	1817.9	1773.2	1737.4	1689.6	1600.4	1901.6	1893.8	1798.8	1754.1	1669.6
C.I.S	3080.4	3080.3	3083.0	3085.5	3088.6	3071.4	3087.3	3093.9	3082.7	3086.1
Foreign	3407.5	3395.7	3380.7	3362.0	3330.2	3917.2	3882.4	3847.5	3817.2	3763.0
Total	2172.0	2153.7	2130.4	2093.3	2018.6	3174.8	3147.7	3129.6	3097.8	3030.2
South Kazak. to/from										
Domestic	834.5	787.3	790.3	792.9	796.8	834.3	790.8	795.5	797.8	800.0
C.I.S	2808.1	2785.8	2752.5	2711.6	2640.7	2809.3	2780.7	2761.3	2713.9	2638.8
Foreign	3480.7	3454.1	3424.2	3382.5	3302.2	3914.3	3873.4	3844.1	3803.3	3745.3
Total	1352.2	1260.9	1260.3	1254.5	1239.7	2182.9	2080.3	2080.0	2048.3	1986.0
Zhambul to/from										
Domestic	610.3	558.8	558.6	558.6	557.8	604.8	564.0	561.4	561.4	562.6
C.I.S	2824.6	2791.3	2746.4	2698.6	2621.3	2823.5	2798.2	2747.1	2697.4	2621.0
Foreign	3495.7	3482.1	3457.0	3435.4	3393.9	3917.7	3874.2	3835.2	3802.7	3746.6
Total	1935.4	1589.2	1568.8	1539.8	1473.2	3400.1	3146.1	3102.3	3051.1	2942.7
Akmola to/from										
Domestic	982.7	839.8	832.4	821.0	790.9	970.2	851.3	842.7	833.8	812.6
C.I.S	2319.6	2320.8	2322.0	2324.2	2328.8	2313.3	2318.6	2317.2	2323.8	2320.2
Foreign	3279.0	3281.7	3291.4	3296.4	3286.4	3647.8	3625.4	3599.7	3579.3	3540.8
Total	1989.6	1904.1	1812.5	1802.8	1750.0	3185.6	3094.2	3096.6	3086.0	3033.7
Senipalatsinsk to/from										
Domestic	807.8	919.9	912.9	902.8	881.6	783.7	911.2	911.5	901.7	879.1
C.I.S	3151.1	3151.4	3150.2	3147.2	3145.6	3113.9	3139.2	3143.2	3138.8	3152.3
Foreign	3097.5	2924.1	2830.9	2806.5	2773.0	3628.7	3485.7	3449.1	3460.0	3412.8
Total	1288.8	1315.0	1312.6	1306.2	1289.2	1836.4	1791.0	1798.2	1792.8	1767.5
Kokchetau to/from										
Domestic	1651.5	1374.6	1351.1	1317.7	1256.7	1731.2	1445.6	1425.8	1395.4	1329.8
C.I.S	2168.5	2170.3	2174.9	2180.6	2187.7	2164.1	2166.2	2175.1	2189.2	2184.6
Foreign	3355.2	3344.6	3334.3	3317.2	3295.2	3641.1	3617.6	3592.3	3567.5	3533.6
Total	1990.5	1736.2	1722.0	1692.1	1635.8	2909.2	2739.8	2728.9	2694.8	2627.5

	Average Passenger-km					Average Ton-km				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
Pavlodar to/from										
Domestic	1081.7	1117.1	1105.2	1089.5	1062.5	1083.2	1161.9	1149.4	1131.4	1100.9
C.I.S	2534.8	2535.5	2537.6	2540.1	2544.5	2552.1	2549.0	2548.1	2537.9	2544.4
Foreign	3265.5	3247.4	3229.0	3200.8	3151.2	3675.2	3652.1	3615.1	3592.4	3554.3
Total	1676.6	1552.9	1534.6	1508.7	1459.5	2371.9	2150.0	2124.1	2077.7	1989.7
North Kazak. to/from										
Domestic	1288.6	1050.2	1041.5	1030.4	1010.3	1271.8	1015.3	1002.5	990.7	958.7
C.I.S	2010.0	2468.1	2459.7	2451.8	2438.9	1765.0	2476.5	2457.4	2444.8	2436.9
Foreign	3153.2	3079.7	3044.1	3013.5	2978.9	3586.0	3638.0	3617.2	3450.4	3450.7
Total	1364.2	1428.8	1411.1	1389.2	1347.9	1826.4	1793.7	1765.2	1714.4	1651.6
Kzyl-Orda to/from										
Domestic	938.4	899.7	898.4	896.3	891.9	938.3	902.6	899.8	898.8	892.5
C.I.S	2259.5	2310.7	2368.4	2394.3	2429.7	2246.5	2430.2	2378.8	2415.2	2425.8
Foreign	2810.4	2586.6	2562.4	2536.2	2491.7	2738.0	2698.6	2676.8	2647.9	2607.9
Total	1158.7	1106.9	1131.6	1152.2	1183.4	1831.6	1722.3	1724.6	1698.0	1659.2
Zhezkazgan to/from										
Domestic	810.8	806.6	796.9	786.0	763.7	906.4	896.1	891.1	885.4	866.5
C.I.S	2308.7	2309.1	2310.2	2310.3	2312.9	2289.3	2275.9	2313.8	2321.4	2307.0
Foreign	3559.5	3552.5	3544.3	3525.3	3502.7	3986.0	3938.6	3899.8	3863.9	3810.5
Total	1445.7	1475.7	1473.4	1459.2	1429.1	3019.5	2987.2	2987.1	2961.7	2917.1
Turgesi to/from										
Domestic	1260.6	1207.3	1200.8	1191.2	1169.4	1257.2	1203.4	1197.5	1182.0	1168.2
C.I.S	2180.0	2467.8	2463.5	2453.1	2441.2	2251.7	2446.4	2422.4	2487.3	2429.7
Foreign	3703.6	3371.8	3252.9	3258.3	3260.5	3932.4	3694.7	3504.4	3616.7	3579.0
Total	1310.3	1395.7	1392.6	1388.8	1377.9	1635.1	1640.8	1616.1	1632.6	1620.5
Mangistau to/from										
Domestic	1519.3	1594.8	1582.1	1567.9	1540.2	1771.3	1802.8	1786.4	1769.2	1735.6
C.I.S	1883.1	1885.0	1888.2	1891.8	1898.2	1882.9	1884.4	1887.1	1892.9	1899.0
Foreign	2907.7	2882.5	2855.4	2831.6	2798.8	2854.2	2821.1	2793.1	2767.8	2723.9
Total	1771.4	1806.5	1802.6	1795.0	1779.9	2411.9	2394.0	2384.6	2368.4	2337.2
Taldykorgan to/from										
Domestic	0.0	1321.0	1285.5	1239.0	1154.7	0.0	1264.6	1229.7	1185.3	1105.3
C.I.S	0.0	3484.8	3483.5	3481.1	3476.7	0.0	3491.2	3489.9	3482.5	3478.2
Foreign	0.0	3574.9	3557.1	3539.8	3507.7	0.0	3859.6	3819.7	3791.7	3739.7
Total	0.0	2696.2	2663.7	2615.6	2514.5	0.0	3452.9	3414.8	3369.6	3276.6
Grand Total (Depart+Arriv)										
Domestic	1159.6	1132.5	1120.6	1105.6	1078.5	1199.6	1168.5	1156.2	1140.2	1110.6
C.I.S	2771.5	2782.6	2760.6	2732.7	2679.8	2792.2	2802.1	2778.4	2748.3	2691.6
Foreign	3324.1	3326.6	3318.6	3309.0	3287.2	3726.1	3698.9	3664.9	3634.6	3583.7
Grand Total	1972.1	1921.3	1900.4	1867.8	1800.4	3036.1	2992.6	2975.5	2943.5	2873.3

B. Air Passenger Movement (Arrival+Departure) by Region

-- Medium Case --

	Number of Passengers (Thousands)					Passenger-km (Millions)				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
Almaty to/from										
Domestic	710.6	890.4	1138.9	1474.0	2354.4	765.2	945.8	1206.9	1557.0	2472.7
C.I.S	598.4	713.6	857.2	1027.4	1414.2	1881.0	2241.5	2689.5	3219.3	4419.4
Foreign	305.8	404.0	522.1	662.6	1006.2	1028.0	1359.8	1756.8	2226.8	3371.6
Total	1614.8	2007.9	2518.2	3164.0	4774.9	3674.1	4547.0	5653.2	7003.2	10263.7
West Kasak. to/from										
Domestic	52.4	95.8	127.6	175.4	317.0	86.1	157.0	209.6	271.2	462.5
C.I.S	4.6	7.7	13.7	24.6	60.7	5.8	9.7	17.4	31.2	77.2
Foreign	6.0	8.0	10.6	14.0	23.0	17.4	22.9	30.0	39.5	63.9
Total	63.0	111.4	151.9	213.9	400.6	109.3	189.5	251.1	341.9	603.7
Aktyubinsk to/from										
Domestic	50.4	65.8	85.7	115.4	198.7	79.0	100.9	128.5	168.2	274.3
C.I.S	14.0	17.7	23.5	32.5	57.7	21.2	27.0	36.0	50.1	89.7
Foreign	4.8	6.3	8.2	10.7	17.0	13.3	17.3	22.2	28.7	45.8
Total	69.2	89.9	117.4	158.6	273.4	113.5	145.2	186.7	247.0	409.8
Karaganda to/from										
Domestic	103.9	167.5	220.2	297.8	518.2	90.8	128.1	167.4	224.6	385.9
C.I.S	100.2	120.5	150.5	190.8	293.2	250.1	300.9	375.7	476.5	732.6
Foreign	38.1	49.0	63.3	81.3	126.7	123.2	158.6	204.6	262.8	406.5
Total	242.2	337.0	434.0	569.8	938.0	464.1	587.5	747.7	963.0	1525.1
Kustanay to/from										
Domestic	39.5	59.0	76.8	103.1	177.1	59.0	79.4	102.4	135.7	227.2
C.I.S	29.6	35.9	46.2	61.2	101.3	53.9	65.5	84.3	112.0	186.4
Foreign	28.3	35.4	45.2	57.6	89.1	97.5	121.7	154.6	196.8	299.1
Total	97.4	130.4	168.1	221.9	366.5	210.5	266.6	341.3	444.5	712.7
Atyrau to/from										
Domestic	107.8	144.6	187.0	243.9	402.5	119.0	174.3	224.4	291.4	475.2
C.I.S	43.4	53.1	67.9	87.6	140.3	67.5	82.7	105.9	137.0	220.5
Foreign	16.1	21.1	27.9	36.3	58.9	58.2	76.0	100.6	130.3	209.8
Total	167.3	218.8	282.8	367.8	601.7	244.8	333.0	430.9	558.7	905.5
East Kazak. to/from										
Domestic	131.8	156.6	199.4	258.1	419.7	239.5	277.7	346.4	436.1	671.6
C.I.S	18.4	22.6	29.4	39.1	65.5	56.7	69.7	90.6	120.5	202.4
Foreign	24.2	31.1	40.3	51.6	80.3	82.6	105.5	136.1	173.4	267.6
Total	174.4	210.3	269.0	348.7	565.5	378.8	452.9	573.1	730.0	1141.6
South Kazak. to/from										
Domestic	153.3	216.9	279.1	366.7	609.3	127.9	170.8	220.6	290.8	485.5
C.I.S	38.6	47.4	61.7	82.2	138.6	108.4	132.0	169.9	222.9	366.0
Foreign	10.9	13.9	18.1	23.3	36.7	37.9	48.0	61.9	78.7	121.1
Total	202.8	278.2	358.9	472.2	784.5	274.2	350.8	452.3	592.4	972.6
Zhambul to/from										
Domestic	28.4	59.4	79.6	112.6	210.4	17.3	33.2	44.5	62.9	117.3
C.I.S	13.0	16.6	22.7	32.7	61.7	38.7	46.4	62.3	88.2	161.8
Foreign	16.7	21.8	28.5	38.3	63.4	58.4	75.7	98.4	131.6	215.0
Total	58.1	97.8	130.8	183.6	335.4	112.5	155.3	205.2	262.7	494.2
Akmola to/from										
Domestic	67.1	113.4	155.0	215.1	369.2	65.9	95.2	129.0	176.8	295.3
C.I.S	46.6	57.6	76.7	103.1	164.3	108.1	133.7	178.2	239.5	382.5
Foreign	40.5	53.9	76.3	105.3	166.4	132.7	176.8	251.0	347.2	546.8
Total	154.2	224.9	307.9	423.5	699.8	306.8	405.7	558.2	763.5	1224.6
Semipalatinsk to/from										
Domestic	58.4	88.5	114.6	149.9	249.5	47.2	81.4	104.6	135.3	220.0
C.I.S	13.2	16.3	21.3	28.2	47.6	41.6	51.3	67.1	88.9	149.8
Foreign	2.0	3.4	4.4	5.6	9.0	6.0	9.5	12.4	15.8	24.9
Total	73.6	108.2	140.3	183.7	306.1	94.8	142.2	184.2	240.0	394.7
Kokchetau to/from										
Domestic	36.8	56.4	73.1	96.0	161.0	60.8	77.5	98.8	126.5	202.3
C.I.S	6.8	8.4	11.3	15.6	27.9	14.7	18.3	24.7	34.0	61.0
Foreign	8.3	10.4	13.6	17.4	27.5	27.7	34.8	45.5	57.9	90.8
Total	51.9	75.2	98.1	129.1	216.4	103.2	130.5	169.0	218.4	353.9

8. Air Passenger Movement (Arrival+Departure) by Region

-- Medium Case --

	Number of Passengers (Thousands)					Passenger-km (Millions)				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
Pavlodar to/from										
Domestic	97.7	184.2	243.0	327.9	572.4	105.7	205.8	268.8	357.3	608.2
C.I.S	50.0	60.5	77.0	99.6	159.0	126.7	159.5	195.5	252.9	404.6
Foreign	9.6	12.3	16.0	28.5	32.3	31.3	39.8	51.6	65.7	101.9
Total	157.3	257.0	336.0	448.0	763.8	263.7	399.1	515.7	675.9	1114.7
North Kazak. to/from										
Domestic	19.8	39.5	52.8	72.7	131.5	25.5	41.5	55.0	74.9	132.8
C.I.S	0.4	12.6	16.3	21.6	36.2	0.8	31.0	40.1	53.0	88.3
Foreign	0.7	1.1	1.6	1.9	3.0	2.2	3.5	4.5	5.7	9.0
Total	20.9	53.2	70.6	96.2	170.7	28.5	76.1	99.6	133.7	230.1
Kzyl-Orda to/from										
Domestic	51.3	83.0	113.4	153.8	279.6	48.1	74.7	101.9	137.8	249.4
C.I.S	3.8	6.1	10.6	18.1	43.4	8.6	14.0	25.1	43.3	105.5
Foreign	4.9	6.7	9.3	12.2	20.9	12.8	17.3	23.9	30.9	52.2
Total	60.0	95.7	133.4	184.1	344.0	69.5	106.0	150.9	212.1	407.1
Zhezkazgan to/from										
Domestic	69.2	82.1	106.2	138.1	227.9	56.1	66.2	84.6	108.6	174.1
C.I.S	19.8	24.4	31.3	40.6	65.8	45.7	56.3	72.4	93.8	152.1
Foreign	12.7	16.7	22.0	28.3	45.1	45.2	59.2	78.1	99.7	158.0
Total	101.7	123.1	159.6	207.1	338.8	147.0	181.7	235.1	302.1	484.2
Turgai to/from										
Domestic	20.4	26.0	32.5	41.7	65.3	25.7	31.4	39.1	49.7	76.3
C.I.S	0.4	3.8	4.9	6.5	10.8	0.9	9.4	12.0	15.9	26.4
Foreign	0.3	0.4	0.5	0.7	1.1	1.0	1.4	1.8	2.3	3.7
Total	21.1	30.3	38.0	48.9	77.2	27.6	42.2	52.9	67.9	106.4
Mangistau to/from										
Domestic	105.8	251.4	318.1	404.4	636.9	282.3	480.8	503.3	634.0	981.0
C.I.S	60.4	73.7	98.0	132.8	232.5	113.7	138.9	185.1	251.2	441.3
Foreign	35.3	44.1	58.6	76.2	123.8	102.5	127.1	167.4	215.8	345.5
Total	201.5	369.1	474.8	613.4	993.2	498.6	666.8	855.8	1101.1	1767.7
Taldykorgan to/from										
Domestic	0.0	37.9	49.8	67.5	119.3	0.0	50.1	64.1	83.6	137.7
C.I.S	0.0	44.7	57.0	74.2	119.6	0.0	155.9	198.7	258.2	415.8
Foreign	0.0	19.2	24.6	31.1	47.5	0.0	68.6	87.3	110.1	166.5
Total	0.0	101.9	131.4	172.8	286.4	0.0	274.6	350.1	451.9	720.1
Grand Total Depart+Arriv										
Domestic	1984.6	2818.3	3652.9	4814.1	8019.6	2301.3	3191.7	4093.5	5322.3	8649.4
C.I.S	1061.6	1343.3	1677.4	2118.3	3240.4	2942.2	3737.8	4630.6	5788.7	8683.4
Foreign	565.0	758.5	991.0	1274.9	1976.9	1878.0	2523.4	3288.8	4218.8	6498.6
Grand Total	3611.1	4920.1	6321.3	8207.3	13236.9	7121.4	9452.9	12012.9	15329.7	23831.4

B. Air Cargo Movements (Arrival+Departure) by Region

-- Medium Case --

	Air Cargo Ton-km (Thousands)					Air Cargo-ton (Ton)				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
Almaty to/from										
Domestic	3529	4350	5542	7136	11290	3169	3966	5062	6542	10418
C.I.S	9109	10853	13019	15583	21393	2897	3454	4149	4974	6846
Foreign	55133	73319	95133	120990	184147	14290	19186	25117	32208	49682
Total	67770	88521	113694	143708	216829	20355	26606	34328	43724	66945
West Kasak. to/from										
Domestic	432	768	997	1332	2275	265	471	628	865	1568
C.I.S	23	38	68	122	303	18	30	54	97	238
Foreign	806	1060	1395	1815	2905	280	375	497	656	1268
Total	1261	1866	2460	3269	5483	563	876	1179	1617	2874
Aktyubinsk to/from										
Domestic	385	491	623	815	1314	250	324	420	561	951
C.I.S	176	226	300	417	747	117	148	196	270	480
Foreign	626	822	1067	1382	2173	227	302	393	516	824
Total	1186	1539	1991	2614	4234	593	774	1009	1347	2256
Karaganda to/from										
Domestic	421	594	773	1038	1782	497	778	1011	1363	2358
C.I.S	848	1021	1274	1618	2486	340	489	511	647	995
Foreign	6425	8310	10775	13830	21575	1767	2382	3004	3882	6117
Total	7694	9924	12823	16485	25843	2604	3481	4525	5892	9470
Kustanay to/from										
Domestic	297	397	513	678	1130	198	301	391	524	898
C.I.S	259	316	405	538	898	142	173	222	294	488
Foreign	4906	6100	7872	10077	15427	1326	1676	2157	2776	4296
Total	5462	6872	8790	11294	17455	1666	2150	2770	3595	5682
Atyrau to/from										
Domestic	593	878	1128	1458	2363	607	885	1037	1344	2193
C.I.S	143	173	221	288	464	91	111	142	184	294
Foreign	2802	3697	4943	6463	10544	741	987	1329	1746	2882
Total	3538	4748	6293	8209	13371	1439	1983	2508	3274	5370
East Kazak. to/from										
Domestic	1244	1497	1852	2311	3580	654	816	1030	1317	2097
C.I.S	274	338	440	593	982	89	110	142	189	317
Foreign	4445	5701	7371	9408	14541	1135	1468	1916	2465	3864
Total	5963	7536	9664	12301	19024	1878	2394	3088	3971	6278
South Kazak. to/from										
Domestic	615	812	1048	1377	2279	738	1027	1317	1726	2849
C.I.S	525	638	825	1080	1770	187	229	299	398	671
Foreign	1984	2513	3244	4103	6262	507	649	844	1079	1672
Total	3125	3962	5117	6560	10311	1431	1905	2460	3203	5192
Zhambul to/from										
Domestic	80	158	211	298	557	133	281	376	531	990
C.I.S	178	225	302	427	783	63	81	110	158	299
Foreign	3085	4010	5207	6977	11401	787	1035	1358	1835	3041
Total	3343	4393	5720	7702	12741	983	1396	1844	2524	4330
Akmola to/from										
Domestic	308	443	598	819	1361	318	521	710	982	1675
C.I.S	436	541	720	970	1548	189	233	311	417	665
Foreign	6854	9204	13179	18360	29116	1879	2539	3661	5130	8216
Total	7599	10188	14497	20149	32026	2385	3293	4682	6529	10557
Semipalatinsk to/from										
Domestic	211	382	494	637	1029	269	419	542	706	1171
C.I.S	294	365	478	633	1072	94	116	152	202	340
Foreign	330	436	576	743	1180	91	125	167	215	346
Total	834	1183	1548	2013	3281	454	650	861	1123	1857
Kokchetau to/from										
Domestic	356	441	562	717	1132	206	305	394	514	851
C.I.S	136	169	229	316	565	63	78	105	144	258
Foreign	1439	1812	2379	3028	4754	395	501	662	849	1345
Total	1931	2422	3169	4061	6451	664	884	1161	1507	2455

B. Air Cargo Movements (Arrival+Departure) by Region

-- Medium Case --

	Air Cargo Ton-km (Thousands)					Air Cargo-ton (Ton)				
	1995	2000	2005	2010	2020	1995	2000	2005	2010	2020
 Pavlodar to/from										
Domestic	589	1086	1413	1873	3167	470	934	1230	1655	2877
C.I.S	294	355	452	582	991	115	139	177	229	366
Foreign	1650	2109	2724	3484	5348	449	578	754	964	1505
Total	2453	3550	4589	5918	9446	1034	1651	2161	2648	4747
 North Kazak. to/from										
Domestic	119	193	255	345	604	94	190	254	349	630
C.I.S	6	266	342	451	754	3	107	139	185	309
Foreign	107	147	190	234	372	30	40	53	68	108
Total	232	606	787	1031	1730	127	338	446	601	1047
 Kzyl-Orda to/from										
Domestic	221	348	473	638	1147	235	385	525	710	1286
C.I.S	25	44	75	130	312	11	18	32	54	129
Foreign	620	838	1160	1475	2438	227	310	433	557	935
Total	866	1229	1707	2243	3698	473	714	990	1321	2349
 Zhezkazgan to/from										
Domestic	231	303	388	498	792	254	339	435	562	914
C.I.S	77	94	123	160	257	34	41	53	69	111
Foreign	2317	3053	4049	5189	8283	581	775	1038	1343	2174
Total	2625	3450	4560	5847	9332	869	1155	1526	1974	3199
 Turgai to/from										
Domestic	126	153	190	241	372	100	127	159	204	319
C.I.S	4	45	57	78	127	2	18	24	31	52
Foreign	63	73	88	118	186	16	20	25	33	52
Total	194	271	335	437	686	118	165	207	268	423
 Mangistau to/from										
Subtotal	1442	1960	2455	3088	4765	814	1087	1374	1746	2745
C.I.S	763	931	1241	1686	2961	405	494	657	891	1559
Foreign	4748	5909	7857	10184	16450	1663	2095	2813	3679	6039
Total	6952	8800	11552	14958	24175	2882	3676	4845	6316	10344
 Taldykorgan to/from										
Domestic	0	218	280	366	607	0	173	227	309	549
C.I.S	0	756	964	1250	2014	0	217	276	359	579
Foreign	0	3584	4491	5695	8688	0	908	1176	1502	2323
Total	0	4478	5734	7311	11309	0	1297	1679	2170	3451
 Grand Total (Depart+Arriv)										
Domestic	11120	15471	19795	25666	41467	9270	13241	17121	22510	37339
C.I.S	13570	17394	21536	26911	40367	4860	6207	7751	9792	14997
Foreign	98340	132675	173700	223533	345790	26392	35869	47396	61501	96490
 Grand Total	123029	165541	215030	276110	427624	40522	55317	72268	93804	148826

Appendix-6.7.5 (2) Fundamental Indices for Economic and Financial Analyses

C. Estimated Air Tariff by Category

Some Analyses on Air Passenger Tariff and Air Cargo Charge

Route	Classification		Assumed models for rate system Rate: US\$/Pax-km or US\$/Ton-km	Remarks
	Citizen-ship	Passenger or Cargo		
Domestic	CIS	Passenger	$TR1 = EXP(-2.162) \cdot DST^{-0.073}$	Rate level is lower (80-90% of that in USA)
CIS Countries	Non CIS	Passenger	$TR2 = EXP(1.1256825) \cdot DST^{-0.48505}$	
Intern'l in CIS	CIS	Passenger	$TR3 = EXP(-0.445261) \cdot DST^{-0.31093}$	Rate level is lower (80-90% of that in USA)
Foreign	CIS	Passenger	$TR4 = EXP(1.40036) \cdot DST^{-0.48505}$	
Foreign	Non CIS	Passenger	$TR5 = EXP(1.6875) \cdot DST^{-0.48505}$	
Example-P	Domestic Intern'l	Passenger	$TR33 = EXP(-0.223546) \cdot DST^{-0.31093}$	Estimated assuming average rate(\$0.081/Pax on 1579km of airlines in USA)
Domestic and CIS	-	Cargo	-	
Foreign	CIS and Non CIS	Cargo	$TR7 = EXP(3.643034) \cdot DST^{-0.48505}$	Extremely expensive (200-300% of that in USA)
Example-C	Domestic Intern'l	Cargo	$TR77 = EXP(1.2828) \cdot DST^{-0.31093}$	Estimated assuming average rate(\$0.3638/Ton-km on 1600km of airlines in USA)

Regression Analysis on Tariff Fare and Rate

International including C.I.S			
Tariff Fare(US\$)		Tariff Rate(US\$/km)	
Constant	-0.445261	Constant	-0.445261
Std Err of Y Est	0.214498	Std Err of Y Est	0
R Squared	0.8381321	R Squared	1
No. of Observation	66	No. of Observation	66
Degree of Freedom	64	Degree of Freedom	64
X Coefficient	0.6890702	X Coefficient	-0.31093
Std Err of Coef.	0.0378528	Std Err of Coef.	0
TF = EXP(-0.445261)*DST^0.6890702		TR = EXP(-0.445261)*DST^-0.31093	
Domestic			
Tariff Fare(US\$)		Tariff Rate(US\$/km)	
Constant	-2.161695	Constant	-2.162
Std Err of Y Est	0.2060168	Std Err of Y Est	0
R Squared	0.8719408	R Squared	1
No. of Observation	78	No. of Observation	78
Degree of Freedom	76	Degree of Freedom	76
X Coefficient	0.9270108	X Coefficient	-0.073
Std Err of Coef.	0.0407512	Std Err of Coef.	0
TF = EXP(-2.162)*DST^0.9270108		TR = EXP(-2.162)*DST^-0.073	
For Foreigners			
Regression Output		Regression Output	
Constant	1.1256825	Constant	1.1256825
Std Err of Y Est	0.1050803	Std Err of Y Est	1.722E-08
R Squared	0.8989621	R Squared	1
No. of Observation	32	No. of Observation	32
Degree of Freedom	30	Degree of Freedom	30
X Coefficient	0.5149523	X Coefficient	-0.48505
Std Err of Coef. (Model)	0.0315194	Std Err of Coe (Model)	5.167E-09
TF = Exp(1.1256825)*DST^0.5149523		TR = Exp(1.1256825)*DST^-0.48505	

Note: Regression analysis for tariff rate is made on the estimated tariff(US\$) divided by distance(km).

TF:Tariff fare(US\$), TR:Tariff rate(US\$/km), Dst:Distance(km).

Applied Data for Analysis on Air Passenger Tariff Rate

(1) International Air Tariff including VAT - Kazakhstan Airline

Air Route	Distance	Tariff* Estimated		Rate	LN(X)	LN(Y'/X)
	(km)	US\$	by Model	Cents/KM		
	(X)	(Y)	(US\$)	Rate=(Y'/X)		
Ashgabad - Almaty	1800	83	112.1	6.2	7.495542	-2.775849
Ashgabad - Ust-Kamenogorsk	2730	190	149.4	5.5	7.912057	-2.905356
Baku - Aktau	390	70	39.1	10.0	5.966147	-2.300314
Bolgograd - Aktau	780	65	63.0	8.1	6.659294	-2.515834
Dashanda - Almaty	880	80	69.5	7.8	6.779922	-2.553341
Ekaterinburg - Almaty	1920	147	117.2	6.1	7.560080	-2.795916
Ekaterinburg - Zhamblul	1880	138	115.5	6.1	7.539027	-2.789370
Ekaterinburg - Zhezkazgan	1120	82	80.9	7.2	7.021084	-2.628326
Ekaterinburg - Kokshetau	710	59	59.1	8.3	6.565265	-2.486598
Ekaterinburg - Pavlodar	1210	93	85.3	7.0	7.098376	-2.652358
Ekaterinburg - Petropavlovsk	600	46	52.6	8.8	6.396930	-2.434257
Irkutsk - Almaty	2650	200	146.4	5.5	7.882315	-2.896108
Kaliningrad - Almaty	4440	200	208.9	4.7	8.398410	-3.056577
Kaliningrad - Uralsk	2185	103	128.2	5.9	7.689371	-2.836116
Kiev - Almaty	3820	160	188.3	4.9	8.248006	-3.009812
Kiev - Uralsk	1616	86	104.1	6.4	7.387709	-2.742320
Mineal Vodi - Aktau	650	50	55.6	8.6	6.476972	-2.459145
Mineal Vodi - Almaty	2830	186	153.2	5.4	7.948032	-2.916541
Mineal Vodi - Atyrau	760	55	61.9	8.1	6.633318	-2.507758
Mineal Vodi - Karaganda	2600	108	144.5	5.6	7.863267	-2.890185
Mineal Vodi - Kustanai	1920	144	117.2	6.1	7.560080	-2.795916
Moscow - Akmoia	2310	150	133.2	5.8	7.745003	-2.853414
Moscow - Aktau	1860	93	114.7	6.2	7.528332	-2.786844
Moscow - Aktyubinsk	1490	105	98.4	6.6	7.306531	-2.717080
Moscow - Almaty	3160	200	165.3	5.2	8.058327	-2.950036
Moscow - Atyrau	1520	140	99.8	6.6	7.326466	-2.723278
Moscow - Balkhash	2840	155	153.5	5.4	7.951559	-2.917638
Moscow - Zhamble	2960	161	158.0	5.3	7.992945	-2.930586
Moscow - Zhezkazgan	2320	106	133.6	5.8	7.749322	-2.854757
Moscow - Karaganda	2500	136	140.6	5.6	7.824046	-2.877990
Moscow - Kokshetau	2120	115	125.5	5.9	7.659171	-2.826726
Moscow - Kustanai	1790	130	111.7	6.2	7.489971	-2.774117
Moscow - Pavlodar	2620	145	145.2	5.5	7.870930	-2.892568
Moscow - Petropavlovsk	2010	105	121.0	6.0	7.605890	-2.810159
Moscow - Semipalatinsk	3170	172	165.6	5.2	8.061487	-2.951818
Moskov -	1070	85	78.4	7.3	6.975414	-2.614125
Moskov - Ust-Kamenogorsk	3110	210	163.4	5.3	8.042378	-2.945876
Moskov - Shinkent	2840	155	153.5	5.4	7.951559	-2.917638
Novosibirsk - Almaty	1430	85	95.7	6.7	7.265430	-2.704300
Novosibirsk - Ust-Kamenogorsk	620	95	53.8	8.7	6.429719	-2.444453
Nukus - Aktau	710	47	59.1	8.3	6.565265	-2.486598
Nukus - Kzyl-Orda	690	59	57.9	8.4	6.536692	-2.477714
Nukus - Shinkent	930	86	71.1	7.6	6.835185	-2.570524
Omsk - Akmoia	470	40	44.5	9.5	6.152733	-2.358329
Omsk - Almaty	1430	85	95.7	6.7	7.265430	-2.704300
Omsk - SZhambul	1600	93	103.4	6.5	7.377759	-2.739227
Omsk - Zhezkazgan	920	52	70.6	7.7	6.824374	-2.567163
Omsk - Kokshetau	310	32	33.4	10.8	5.736572	-2.228933
Omsk - Pavlodar	480	25	45.1	9.4	6.173786	-2.364876
Omsk - Shinkent	1550	95	101.2	6.5	7.346010	-2.729355
Postv-on-Done - Aktau	1060	84	77.9	7.3	6.966024	-2.611206
Samara - Aktau	1090	91	79.4	7.3	6.993933	-2.619884
Samara - Almaty	2460	140	139.1	5.7	7.807917	-2.872975
Samara - Atyrau	730	78	60.2	8.2	6.593045	-2.495235
St. Petersburg - Aktyubinsk	2140	102	126.3	5.9	7.668561	-2.829646
St. Petersburg - Almaty	3790	185	187.3	4.9	8.240121	-3.007361
Tashkent - Almaty	780	60	63.0	8.1	6.659294	-2.515834
Tashkent - Balkhash	890	71	69.0	7.8	6.791221	-2.556855
Tashkent - Zhezkazgan	750	58	61.3	8.2	6.620073	-2.503639
Tashkent - Kustanai	1430	92	95.7	6.7	7.265430	-2.704300
Tashkent - Pavlodar	1640	105	105.2	6.4	7.402452	-2.746904
Tashkent - Shinkent	120	25	17.4	14.5	4.787492	-1.933835
Urdzhar - Almaty	660	41	56.2	8.5	6.492240	-2.463892
Urdzhar - Semipalatinsk	420	25	41.1	9.8	6.040255	-2.323357
Yha - Almaty	2110	130	125.1	5.9	7.654443	-2.825256
Yha - Kokshetau	1250	79	87.2	7.0	7.130899	-2.662470

* Exchange rate(Tenge/US\$): 60.93

Source of Tariff: Latest Tariff of Air Kazakhstan

Analysis on Air Passenger Tariff Rate

(2) Domestic Air Tariff including UAT - Kazakhstan Airline

Air Route	Distance (km) (X)	Tariff* US\$ (Y)	Estimated by Model** (US\$)	Rate Cents/KM (Y'/X)	LN(X)	LN(Y'/X)
Akmola - Aktyubinsk	1040	91	72.1	6.9	6.94698	-2.66913
Akmola - Almaty	960	84	66.9	7.0	6.86693	-2.66329
Akmola - Arkalyk	440	30	32.5	7.4	6.08677	-2.60833
Akmola - Atyrau	1650	107	110.6	6.7	7.40853	-2.70282
Akmola - Karaganda	200	13	15.6	7.8	5.29832	-2.54878
Akmola - Kzyl-Orda	820	75	57.8	7.1	6.70938	-2.65178
Akmola - Pavlodar	410	22	30.4	7.4	6.81616	-2.60118
Akmola - Ust-Kamenogorsk	880	60	61.7	7.0	6.77992	-2.65693
Akmola - Shimkent	1090	70	75.3	6.9	6.99393	-2.67256
Aktau - Aktyubinsk	880	85	61.7	7.0	6.77992	-2.65693
Aktau - Almaty	2180	120	143.2	6.6	7.68708	-2.72316
Aktau - Atyrau	370	35	27.7	7.5	5.91358	-2.59369
Aktau - Kzyl-Orda	1240	90	84.9	6.8	7.12287	-2.68197
Aktau - Kokshetau	2190	108	143.8	6.6	7.69166	-2.72349
Aktau - Kustanai	1430	143	96.8	6.8	7.26543	-2.69238
Aktau - Uralsk	820	86	57.8	7.1	6.70938	-2.65178
Aktau - Ust-Kamenogorsk	2800	130	180.5	6.4	7.93737	-2.74143
Aktau - Shimkent	1650	112	110.6	6.7	7.40853	-2.70282
Aktyubinsk - Almaty	1790	111	119.2	6.7	7.48997	-2.70877
Aktyubinsk - Arkalyk	720	57	51.3	7.1	6.57925	-2.64229
Aktyubinsk - Atyrau	610	40	44.0	7.2	6.41346	-2.63018
Aktyubinsk - Zhezkazgan	840	64	59.1	7.0	6.73340	-2.65354
Aktyubinsk - Karaganda	1230	87	84.2	6.8	7.11477	-2.68138
Aktyubinsk - Kokshetau	960	72	66.9	7.0	6.86693	-2.66329
Aktyubinsk - Kustanai	550	50	39.9	7.3	6.30992	-2.62262
Aktyubinsk - Pavlodar	1470	83	99.3	6.8	7.29302	-2.69439
Aktyubinsk - Petropavlovsk	970	62	67.6	7.0	6.87730	-2.66404
Aktyubinsk - Uralsk	410	44	30.4	7.4	6.81616	-2.60118
Almaty - Arkalyk	1330	90	98.5	6.8	7.19293	-2.68708
Almaty - Atyrau	2200	115	144.4	6.6	7.69821	-2.72382
Almaty - Balkhash	450	37	33.2	7.4	6.10925	-2.60798
Almaty - Zhabul	590	40	42.6	7.2	6.36312	-2.62775
Almaty - Zhezkazgan	1000	65	69.5	7.0	6.90776	-2.66627
Almaty - Zaisan	960	90	66.9	7.0	6.86693	-2.66329
Almaty - Karaganda	760	58	53.9	7.1	6.63332	-2.64623
Almaty - Kzyl-Orda	940	85	65.6	7.0	6.84588	-2.66175
Almaty - Kokshetau	1250	95	85.5	6.8	7.13090	-2.69256
Almaty - Kustanai	1550	110	104.4	6.7	7.34601	-2.69826
Almaty - Pavlodar	1060	75	73.4	6.9	6.96602	-2.67052
Almaty - Petropavlovsk	1250	94	85.5	6.8	7.13090	-2.69256
Almaty - Semipalatinsk	860	59	60.4	7.0	6.75693	-2.65526
Almaty - Uralsk	2210	120	145.0	6.6	7.70075	-2.72415
Almaty - Ust-Kamenogorsk	880	58	61.7	7.0	6.77992	-2.65693
Almaty - Shimkent	670	45	48.0	7.2	6.50728	-2.63703
Almaty - Ekibastuz	980	66	68.2	7.0	6.88755	-2.66479
Arkalyk - Zhabul	1090	49	75.3	6.9	6.99393	-2.67256
Arkalyk - Zhezkazgan	330	22	24.9	7.5	5.79909	-2.58533
Arkalyk - Karaganda	500	40	36.6	7.3	6.21461	-2.61667
Arkalyk - Kzyl-Orda	690	55	49.3	7.1	6.53669	-2.63918
Arkalyk - Shimkent	960	62	66.9	7.0	6.86693	-2.66329
Atyrau - Zhezkazgan	1440	80	97.5	6.8	7.27240	-2.69289
Atyrau - Karaganda	1840	137	122.3	6.6	7.51752	-2.71078
Atyrau - Kzyl-Orda	1260	77	86.1	6.8	7.13887	-2.68314
Atyrau - Kustanai	1160	79	79.8	6.9	7.05618	-2.67710
Atyrau - Petropavlovsk	1570	102	105.6	6.7	7.35883	-2.69919
Atyrau - Uralsk	450	38	33.2	7.4	6.10925	-2.60798
Balkhash - Zhezkazgan	600	30	43.3	7.2	6.39693	-2.62898
Balkhash - Pavlodar	630	37	45.3	7.2	6.44572	-2.63254
Zhabul - Zhezkazgan	760	60	53.9	7.1	6.63332	-2.64623
Zhabul - Karaganda	930	61	65.0	7.0	6.83518	-2.66097
Zhabul - Shimkent	220	11	17.1	7.8	5.39363	-2.55573
Zhezkazgan - Kzyl-Orda	360	42	27.0	7.5	5.88610	-2.59169
Zhezkazgan - Pavlodar	870	49	61.1	7.0	6.76849	-2.65610
Zhezkazgan - Shimkent	630	55	45.3	7.2	6.44572	-2.63254
Karaganda - Kustanai	790	64	55.9	7.1	6.67203	-2.64906
Karaganda - Ust-Kamenogorsk	840	75	59.1	7.0	6.73340	-2.65354
Karaganda - Shimkent	1110	66	76.6	6.9	7.01212	-2.67388
Kzyl-Orda - Pavlodar	1220	95	83.6	6.9	7.10661	-2.68078
Kzyl-Orda - Shimkent	420	27	31.1	7.4	6.04025	-2.60294
Kokshetau - Uralsk	1370	101	93.1	6.8	7.22257	-2.68925
Kokshetau - Ust-Kamenogorsk	1070	60	74.0	6.9	6.97541	-2.67121
Kustanai - Petropavlovsk	420	38	31.1	7.4	6.04025	-2.60294
Kustanai - Ust-Kamenogorsk	1480	88	100.0	6.8	7.29980	-2.69489
Kustanai - Shimkent	1310	83	89.3	6.8	7.17778	-2.68598
Pavlodar - Petropavlovsk	610	57	44.0	7.2	6.41346	-2.63018
Pavlodar - Shimkent	1440	95	97.5	6.8	7.27240	-2.69289
Semipalatinsk - Ust-Kamenogorsk	170	8	13.4	7.9	5.13580	-2.53691
Uralsk - Ust-Kamenogorsk	2330	100	162.3	6.5	7.75362	-2.72801

* Exchange rate (Tenge/US\$): 60.93
 Source of Tariff: Latest Tariff of Air Kazakhstan

(3) Tariff for Foreigners

Air Routes	Distance (km) (X)	Tariff Estimate by Model (Y1')	Tariff Rate US\$/km (Y1'/X)	LN(X)	LN(Y1'/X)	Tariff Rate estimated by Model
Ashgabad - Almaty	1800	146	0.081	7.495542	-2.510030	8.1
Dushanba - Almaty	880	101	0.115	6.779922	-2.162919	11.5
Ekaterinburg - Almaty	1920	151	0.079	7.560080	-2.541335	7.9
Irkutsk - Almaty	2650	179	0.067	7.882315	-2.697634	6.7
Kaliningrad - Almaty	4440	233	0.052	8.398410	-2.947966	5.2
Kiev - Almaty	3820	216	0.056	8.248006	-2.875013	5.6
Mineal Uodi - Almaty	2830	185	0.065	7.948032	-2.729510	6.5
Moskow - Almaty	3160	195	0.062	8.059327	-2.783809	6.2
Novosibirsk - Almaty	1430	130	0.091	7.265430	-2.398414	9.1
Omsk - Almaty	1430	130	0.091	7.265430	-2.398414	9.1
Samara - Almaty	2460	172	0.070	7.807917	-2.661547	7.0
St. Petersburg - Almaty	3790	215	0.057	8.240121	-2.871188	5.7
Tashkent - Almaty	780	95	0.122	6.659294	-2.104408	12.2
Urdzhar - Almaty	660	87	0.132	6.492240	-2.023378	13.2
Aknola - Almaty	960	106	0.110	6.866933	-2.205123	11.0
Aktau - Almaty	2180	161	0.074	7.687080	-2.602936	7.4
Aktyubinsk - Almaty	1790	146	0.081	7.489971	-2.507328	8.1
Almaty - Arkalyk	1330	125	0.094	7.192934	-2.363250	9.4
Almaty - Atyrau	2200	162	0.074	7.696213	-2.607365	7.4
Almaty - Balkhash	450	72	0.159	6.109248	-1.837608	15.9
Almaty - Zhambul	590	82	0.140	6.380123	-1.968996	14.0
Almaty - Karaganda	760	94	0.123	6.633318	-2.091809	12.3
Almaty - Kzyl-Orda	940	105	0.111	6.845880	-2.194912	11.1
Almaty - Kokshetau	1250	121	0.097	7.130899	-2.333160	9.7
Almaty - Kostensi	1550	135	0.087	7.346810	-2.437508	8.7
Almaty - Pavlodar	1060	111	0.105	6.966024	-2.253188	10.5
Almaty - Petropavlovsk	1250	121	0.097	7.130899	-2.333160	9.7
Almaty - Semipalatinsk	860	100	0.116	6.756932	-2.151768	11.6
Almaty - Uralsk	2210	163	0.074	7.700748	-2.609565	7.4
Almaty - Ust-Kamenogorsk	880	101	0.115	6.779922	-2.162919	11.5
Almaty - Shymkent	670	86	0.131	6.507278	-2.030673	13.1
Almaty - Ekibastuz	980	107	0.109	6.807553	-2.215125	10.9

* Air Kazakhstan

** Central Asia Tourism Corporation

Analysis on Air Cargo Charge

Air cargo rates of Kazakhstan Airlines for Almaty - Istanbul is as follows:

Route	Distance (km)	Weight (kg)	Rate/Kg (US\$)
Almaty-Istanbul	2439	up to 500 kg	2.4
		Over 500 kg	2.0

Air cargo charge for Almaty-Istanbul amounts to 2000 - 2400 US\$/ton or 0.820 - 0.984 US\$/ton-km which is extremely expensive compared with those of air cargo rate in U.S.A. (See Appendix-)
 Assuming that the model type is same as that of air passenger tariff on CIS Routes and the cargo rate is coincident with that for Almaty - Istanbul, the model can be formulated as follows:

$$\begin{aligned} \ln(0.820) &= \ln(X) - 0.48505 \cdot \ln(2439) \\ \ln(X) &= -0.19845 + 3.78307 \\ \ln(X) &= 3.643034 \end{aligned}$$

Accordingly, the formula to be obtained is shown as the following:

$$TR = \exp(3.643034) \cdot DST^{-0.48505}$$

where TR is tariff rate(US\$/km) and DST is distance or length(km).

Estimated air cargo charges and rates are shown in the following:

Distance (km)	Rate \$/Ton-km	Charge (US\$)
500	1.875	937.5
600	1.716	1029.8
700	1.593	1114.9
800	1.493	1194.3
900	1.410	1268.9
1000	1.340	1339.7
1100	1.279	1407.1
1200	1.226	1471.5
1300	1.180	1533.5
1400	1.138	1593.1
1500	1.100	1650.7
1600	1.067	1706.5
1700	1.036	1760.6
1800	1.007	1813.2
1900	0.981	1864.4
2000	0.957	1914.3
2100	0.935	1963.0
2200	0.914	2010.6
2300	0.894	2057.2
2400	0.876	2102.8
2500	0.859	2147.4
2600	0.843	2191.2
2700	0.827	2234.2
2800	0.813	2276.5
2900	0.799	2318.0
3000	0.786	2358.8
3100	0.774	2399.0
3200	0.762	2438.5
3300	0.751	2477.5
3400	0.740	2515.8
3500	0.730	2553.7
3600	0.720	2591.0
3700	0.710	2627.8
3800	0.701	2664.2
3900	0.692	2700.0
4000	0.684	2735.5
4100	0.676	2770.5
4200	0.668	2805.1
4300	0.660	2839.3
4400	0.653	2873.1
4500	0.646	2906.5
4600	0.639	2939.6
4700	0.632	2972.3
4800	0.626	3004.7
4900	0.620	3036.8
5000	0.614	3068.6

Passenger Revenue per Distance and Average Trip Length
 -- U.S. Scheduled Airlines --

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Average Revenue											
US Cents/Mile	11.7	10.9	11.1	11.9	12.4	12.8	12.7	12.5	13.1	12.6	12.9
US Cents/KM	7.3	6.8	6.9	7.4	7.8	8.0	7.9	7.8	8.2	7.9	8.1
Average Passenger Trip											
Length - Miles	881	875	903	931	954	984	990	1007	1002	982	987
- Kilometers	1410	1408	1445	1498	1526	1574	1584	1611	1603	1571	1579

Source: AIR TRANSPORT 1996, ANNUAL REPORT.

(1) Air Passengers rate of scheduled airlines in USA

$$\begin{aligned} \ln(0.081) &= \ln(X) - 0.31093 \cdot \ln(1579) \\ \ln(X) &= -2.513306 + 2.28986 \\ \ln(X) &= -0.223546 \end{aligned}$$

Accordingly, the formula to be obtained is shown as the following:

$$TR = \exp(-0.223546) \cdot DST^{-0.31093}$$

where TR is tariff rate (US\$/km) and DST is distance or length (km).

Distance (KM)	Rate \$/Pax-km	Fare US\$/Pax
500	0.1158	57.9
600	0.1094	65.7
700	0.1043	73.0
800	0.1001	80.0
900	0.0965	86.8
1000	0.0934	93.4
1100	0.0906	99.7
1200	0.0882	105.8
1300	0.0860	111.9
1400	0.0841	117.7
1500	0.0823	123.4
1600	0.0807	129.1
1700	0.0792	134.6
1800	0.0778	140.0
1900	0.0765	145.3
2000	0.0753	150.5
2100	0.0741	155.7
2200	0.0731	160.7
2300	0.0721	165.7
2400	0.0711	170.7
2500	0.0702	175.5
2600	0.0694	180.3
2700	0.0685	185.1
2800	0.0678	189.8
2900	0.0670	194.4
3000	0.0663	199.0
3100	0.0657	203.6
3200	0.0650	208.1
3300	0.0644	212.5
3400	0.0638	216.9
3500	0.0632	221.3
3600	0.0627	225.7
3700	0.0622	230.0
3800	0.0616	234.2
3900	0.0611	238.5
4000	0.0607	242.7
4100	0.0602	246.8
4200	0.0598	251.0
4300	0.0593	255.1
4400	0.0589	259.1
4500	0.0585	263.2
4600	0.0581	267.2
4700	0.0577	271.2
4800	0.0573	275.1
4900	0.0570	279.1
5000	0.0566	283.0

Freight Revenue per Ton-Mile and per Ton-Km

	1985	1986	1987	1988	1989	1990
Freight and Express Ton Miles(\$000) (A)	6030543	7344054	8268278	9632219	10275002	10546329
Freight and Express Revenues(\$000) (B)	2680715	5627996	6398156	7477731	6892754	5431627
Revenue/Ton mile (US\$/Mile) (B/A) (C)	0.4445	0.7663	0.7746	0.7763	0.6708	0.5158
Revenue/Ton-km (US\$/km) (C)/1.6 (D)	0.2778	0.4790	0.4841	0.4852	0.4193	0.3219

	1991	1992	1993	1994	1995
Freight and Express Ton Miles(\$000) (A)	10225199	11129712	11943595	13792157	14568416
Freight and Express Revenues(\$000) (B)	5508572	5915650	6662389	7283927	8480085
Revenue/Ton mile (US\$/Mile) (B/A) (C)	0.5387	0.5315	0.5578	0.5281	0.5821
Revenue/Ton-km (US\$/km) (C)/1.6 (D)	0.3367	0.3322	0.3486	0.3301	0.3638

Source: AIR TRANSPORT 1996, ANNUAL REPORT.

Assuming that average length is 1600km and tariff rate for this length is 0.3638 US\$/km while provided that the formula type is same as that of international passenger tariff rate, the formula satisfying the above assumptions is obtained as follows:

$$\ln(0.3638) = \ln(X) - 0.31093 \cdot \ln(1600)$$

$$\ln(X) = 2.2940 - 1.0112$$

$$\ln(X) = 1.2828$$

Accordingly, the formula to be obtained is shown as the following:

$$TR = \exp(1.2828) \cdot DST^{-0.31093}$$

where TR is tariff rate(US\$/km) and DST is distance or length(km).

Cargo Tariff Rate and Fare

Distance (km)	Rate US\$/TON-km	Fare US\$/Ton
300	0.6122	184
400	0.5598	224
500	0.5223	261
600	0.4935	296
700	0.4704	329
800	0.4513	361
900	0.4351	392
1000	0.4210	421
1100	0.4087	450
1200	0.3978	477
1300	0.3881	504
1400	0.3792	531
1500	0.3712	557
1600	0.3638	582
1700	0.3570	607
1800	0.3507	631
1900	0.3449	655
2000	0.3394	679
2100	0.3343	702
2200	0.3295	725
2300	0.3250	747
2400	0.3207	770
2500	0.3167	792
2600	0.3128	813
2700	0.3092	835
2800	0.3057	856
2900	0.3024	877
3000	0.2992	898
3100	0.2962	918
3200	0.2933	938
3300	0.2905	959
3400	0.2878	978
3500	0.2852	998
3600	0.2827	1018
3700	0.2803	1037
3800	0.2780	1056
3900	0.2758	1075
4000	0.2736	1094
4100	0.2715	1113
4200	0.2695	1132
4300	0.2675	1150
4400	0.2656	1169
4500	0.2638	1187
4600	0.2620	1205
4700	0.2602	1223
4800	0.2585	1241
4900	0.2569	1259
5000	0.2553	1276

1985-1995 SUMMARY -- U.S. Scheduled Airlines

	1985	1986	1987	1988	1989	1990
Traffic Scheduled Service						
Revenue Passengers Enplaned(000)	382022	418946	447678	454614	435692	465560
Revenue Passenger Miles(000)	336403021	366545855	404471484	423301559	432714309	457926286
Available Seat Miles(000)	547788432	607435847	648720938	676802328	684375876	733374893
Revenue Passenger Load Factors(%)	61.4	60.3	62.3	62.5	63.2	62.4
Average Passenger Trip Length(Miles)	881	875	903	931	954	984
Freight and Express Ton Miles(000)	6030543	7344054	8260278	9632219	10275002	10546329
Aircraft Departures	5835474	6426970	6581309	6699564	6622080	6923593
Financial						
Passenger Revenues(\$000)	39235009	40056093	44940391	50295686	53002067	58453215
Freight and Express Revenues(\$000)	2680715	5627996	6398156	7477731	6892754	5431627
Mail Revenues(\$000)	889575	830278	923022	971807	955455	970475
Charter Revenues	1279812	1268899	1611673	1697793	2051883	2876581
Total Operating Revenues(\$000)	46664414	50524933	56985709	63748886	69315854	76141739
Total Operating Expenses(\$000)	45230150	49201832	54516820	60312383	67504587	78054094
Operating Profits(\$000)	1426264	1323101	2468889	3436503	1811267	1912355
Interest Expenses(\$000)	1588306	1692548	1695388	1845762	1944388	1978163
Net Profits(\$000)	862715	234909	593398	1685599	127902	3921002
Revenue per Passenger Mile(Cent)	11.7	10.9	11.1	11.9	12.4	12.8
Rate of Return on Investment(%)	9.6	4.9	7.2	10.8	6.3	6.0
Operating Profit Margin(%)	3.1	2.6	4.3	5.4	2.6	2.5
Net Profit Margin(%)	1.8	0.5	1	2.6	0.2	5.1
Employees	355113	421686	457349	480553	506728	545809

	1991	1992	1993	1994	1995
Traffic Scheduled Service					
Revenue Passengers Enplaned(000)	452301	475108	488520	528848	547384
Revenue Passenger Miles(000)	447954829	478553708	489684421	519381688	540399434
Available Seat Miles(000)	715199140	752772435	771640648	784330936	808612491
Revenue Passenger Load Factors(%)	62.6	63.6	63.5	66.2	67.0
Average Passenger Trip Length(Miles)	990	1007	1002	982	987
Freight and Express Ton Miles(000)	10225199	11129712	11943595	13792157	14568416
Aircraft Departures	6782782	7050633	7245395	7531026	8053582
Financial					
Passenger Revenues(\$000)	57091675	59820487	63945223	65421539	69484871
Freight and Express Revenues(\$000)	5508572	5915650	6662389	7283927	8480085
Mail Revenues(\$000)	957077	1184205	1211631	1183268	1265351
Charter Revenues	3717358	2801163	3081990	3548428	3327343
Total Operating Revenues(\$000)	75158493	78140243	84559213	88313425	94325335
Total Operating Expenses(\$000)	76943234	80584703	83121041	85599970	88432993
Operating Profits(\$000)	1784741	2444460	1438172	2713455	5892342
Interest Expenses(\$000)	1776994	1742641	2026793	2347478	2415267
Net Profits(\$000)	1940157	4791284	2135626	344115	2376763
Revenue per Passenger Mile(Cent)	12.7	12.5	13.1	12.6	12.9
Rate of Return on Investment(%)	0.5	9.3	8.4	5.2	12.0
Operating Profit Margin(%)	2.4	3.1	1.7	3.1	6.2
Net Profit Margin(%)	2.6	6.1	2.5	0.4	2.5
Employees	533565	540413	537111	539759	546987

Notes: Federal Express began reporting as a Section 401 carrier in 1986 and is included in 1986 and later years.

Source: AIR TRANSPORT 1996, ANNUAL REPORT.

Appendix-6.7.5 (3) Records of Non-Resident Tourism

Residence	Number of People	Length of Stay (man-day)	Average Stay (day/man)	Sold Voucher's Cost	
				Th. Tenge	Th. US\$
Total	20156	77442	3.8	74964.1	1155.7
Russia	12419	47401	3.8	10401.4	26.5
East Europe					
Austria	181	758	4.2	38.4	7.8
Bulgaria	29	64	2.2	157.5	4.3
Hungary	42	67	1.6	271.5	0.2
Latovia	4	51	12.8	340.8	0.9
Macedonia	3	20	6.7	-	2.8
Poland	15	32	2.1	124.5	0.6
Romania	24	47	2.0	43.6	1.9
Slovakia	13	61	4.7	44.9	6.3
Czechia	28	101	3.6	454.2	2.4
Croatia	1	6	6.0	-	0.7
Yugoslavia	23	31	1.3	57.8	0.4
Asia(1)					
China	54	163	3.0	115.9	0.2
Mongolia	3	4	1.3	8.1	0.1
Asia(2)(Far East)					
Japan	073	4127	4.7	3041.4	116.9
South Korea	263	348	1.3	349.6	4.8
Honkong	27	56	2.1	-	3.6
Asia(3)(West Asia)					
Afghanistan	275	288	1.0	49.8	1.4
Irak	1	1	1.0	9.0	0.1
Iran	16	59	3.7	165.8	0.7
Pakistan	122	949	7.8	684.4	4.7
Israel	86	260	3.0	770.4	15.4
Jordan	1	1	1.0	4.2	0.1
Turkey	512	1905	3.7	7095.0	56.1
United Arab Emirates	14	24	1.7	145.3	0.7
Saudi Arabia	22	24	1.1	-	0.5
Bahrain(Quatar)	2	15	7.5	60.2	0.3
Lebanon	9	36	4.0	60.5	2.2
Cyprus	14	83	5.9	-	8.3
Syria					
Asia(4)(Other Asia)					
India	61	144	2.4	384.1	2.3
Indonesia	2	3	1.5	-	0.3
Sri-Lanka	5	23	4.6	109.4	0.3
Thailand					
West Europe					
Great Britain	647	2865	4.4	5193.4	79.3
Germany	883	2949	3.2	5091.5	159.7
Greece	51	233	4.6	506.9	8.4
Denmark	27	172	6.4	2341.6	0.9
Ireland	17	87	5.1	2969.2	1.3
Spain	22	252	11.5	-	0.8
Italy	303	819	2.7	1846.8	31.1
Malta	2	2	1.0	-	0.2
Neitherlands	296	2790	9.4	2189.2	27.3
Finland	122	281	2.3	424.3	21.1
France	388	1566	4.0	3873.1	50.1
Switzerland	64	201	3.1	405.4	15.2
Sweden	116	173	1.5	166.9	9.1
Belgium	56	222	4.0	78.0	7.8
Portugal	6	24	4.0	45.5	2.1
Canary Islands					
Meditarenean ...					
Sicily					
North America					
Canada	114	386	3.4	233.7	13.9
USA	1669	6319	3.8	19481.1	410.0
Others					
Argentina	8	27	3.4	24.8	2.3
Australia	200	982	4.9	4140.1	37.9
Guatemala	1	9	9.0	-	1.0
Dominican Republic	3	4	1.3	-	0.9
New Zealand	7	7	1.0	-	0.6
Costa Rica					
Uruguay					
Egypt	3	12	4.0	37.7	0.3
Sudan	6	7	1.2	39.2	0.3
South Africa	1	1	1.0	-	0.3

Note: This table is made from "Records of non-resident tourism" excluding the date which did not describe the amount in US Dollar.

Appendix -6.7.6(1) Cost Estimation for Economic and Financial Evaluation

Akmola 1.1 Estimated Construction Cost in US Dollars

Akmola	1997		1998		1999		2000	
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)
1. Civil	291.2	290.8	291	306	5,968	5,958	5,968	5,959
2. Architecture	795.6	651	796	688	16,305	13,340	16,305	13,340
3. Equipment	1041.1	335.8	1,041	371	21,334	6,881	21,334	6,881
Total	2,128	1,278	2,128	1,365	43,607	26,180	43,607	26,180

Akmola	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	5,968	5,959	18,486	18,472	36,958
2. Architecture	16,305	13,340	50,505	41,360	91,865
3. Equipment	21,334	6,881	66,085	21,351	87,435
Total	43,607	26,180	135,075	81,183	216,258

Akmola 1.2 Estimated Financial Construction Cost -- In Million Tenge --

Akmola	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	20	20	20	21	420	419	420	419
2. Architecture	56	46	56	48	1,146	938	1,146	938
3. Equipment	73	24	73	26	1,500	484	1,500	484
Total	150	90	150	96	3,066	1,840	3,066	1,840

Akmola	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	420	419	1,300	1,299	2,598
2. Architecture	1,146	938	3,551	2,908	6,458
3. Equipment	1,500	484	4,646	1,501	6,147
Total	3,066	1,840	9,496	5,707	15,203

Note: KAZT/US\$=70.3

Akmola 1.3 Estimated Economic Construction Cost -- in Million Tenge --

Akmola	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	20	17	20	18	420	343	420	343
2. Architecture	56	38	56	40	1,146	769	1,146	769
3. Equipment	73	19	73	21	1,500	397	1,500	397
Total	150	74	150	79	3,066	1,509	3,066	1,509
Foreign+Local		223		228		4,575		4,575

Akmola	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	420	343	1,300	1,065	2,364
2. Architecture	1,146	769	3,551	2,384	5,935
3. Equipment	1,500	397	4,646	1,231	5,877
Total	3,066	1,509	9,496	4,680	14,176
Foreign+Local		4,575		14,176	14,176

Note: Local portion are produced multiplying the conversion factor of 0.82.

Akmola 1.4.1 Estimate of Operating and Maintenance Cost -- Financial -- (Mil. Tenge)

Akmola	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	2,598	0.01	26
2. Architecture	6,458	0.01	65
3. Equipment	6,147	0.04	246
Total	15,203	-	336

Akmola 1.4.2 Estimate of Operating and Maintenance Cost -- Economic -- (Mil. Tenge)

Akmola	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	2,364	0.01	24
2. Architecture	5,935	0.01	59
3. Equipment	5,877	0.04	235
Total	14,176	-	318

Aktau 1.1

Estimated Construction Cost in US Dollars

Aktau	1997		1998		1999		2000	
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)
1. Civil	43	39	43	39	888	799	888	799
2. Architecture	333	272	333	272	6,871	5,622	6,871	5,622
3. Equipment	819	162	819	162	16,908	3,341	16,908	3,341
Total	1,195	473	1,195	473	24,667	9,762	24,667	9,762

Aktau	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	888	799	2,751	2,473	5,224
2. Architecture	6,871	5,622	21,280	17,411	38,690
3. Equipment	16,908	3,341	52,360	10,347	62,707
Total	24,667	9,762	76,391	30,230	106,621

Aktau 1.2

Estimated Financial Construction Cost
-- in Million Tenge --

Aktau	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	3	3	3	3	62	56	62	56
2. Architecture	23	19	23	19	483	395	483	395
3. Equipment	58	11	58	11	1,189	235	1,189	235
Total	84	33	84	33	1,734	686	1,734	686

Aktau	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	62	56	193	174	367
2. Architecture	483	395	1,496	1,224	2,720
3. Equipment	1,189	235	3,681	727	4,408
Total	1,734	686	5,370	2,125	7,495

Note: KAZT/US\$=70.3

Aktau 1.3

Estimated Economic Construction Cost
-- in Million Tenge --

Aktau	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	3	2	3	2	62	46	62	46
2. Architecture	23	16	23	16	483	324	483	324
3. Equipment	58	9	58	9	1,189	193	1,189	193
Total	84	27	84	27	1,734	563	1,734	563
Foreign+Local		111		111		2,297		2,297

Aktau	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	888	799	2,751	2,473	5,224
2. Architecture	6,871	5,622	21,280	17,411	38,690
3. Equipment	16,908	3,341	52,360	10,347	62,707
Total	24,667	9,762	76,391	30,230	106,621

Note: Local portion are produced multiplying the conversion factor of 0.82.

Aktau 1.4.1 Estimate of Operating and Maintenance Cost

-- Financial -- (Mil. Tenge)

Aktau	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	367.2	0.810	3.7
2. Architecture	2,719.9	0.810	27.2
3. Equipment	4,408.3	0.840	176.3
Total	7,495.4	-	207.2

Aktau 1.4.2 Estimate of Operating and Maintenance Cost

-- Economic -- (Mil. Tenge)

Aktau	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	335.9	0.810	3.4
2. Architecture	2,499.8	0.810	25.0
3. Equipment	4,277.4	0.840	171.1
Total	7,112.9	-	199.5

Aktyubinsk 1.1 Estimated Construction Cost in US Dollars

Aktyubinsk	1997		1998		1999		2000	
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)
1. Civil	138.2	100.9	138	101	2,936	2,145	2,936	2,145
2. Architecture	231.8	189.6	232	190	4,925	4,029	4,925	4,029
3. Equipment	656.3	119.3	656	119	13,945	2,535	13,945	2,535
Total	1,026	410	1,026	410	21,806	8,709	21,806	8,709

Aktyubinsk	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	2,936	2,145	9,084	6,636	15,720
2. Architecture	4,925	4,029	15,237	12,467	27,704
3. Equipment	13,945	2,535	43,149	7,843	50,992
Total	21,806	8,709	67,470	26,946	94,415

Aktyubinsk 1.2 Estimated Financial Construction Cost -- in Million Tenge --

Aktyubinsk	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	10	7	10	7	206	151	206	151
2. Architecture	16	13	16	13	346	283	346	283
3. Equipment	46	8	46	8	980	178	980	178
Total	72	29	72	29	1,533	612	1,533	612

Aktyubinsk	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	206	151	639	467	1,105
2. Architecture	346	283	1,071	876	1,948
3. Equipment	980	178	3,033	551	3,585
Total	1,533	612	4,743	1,894	6,637

Note: KAZT/US\$=70.3

Aktyubinsk 1.3 Estimated Economic Construction Cost -- in Million Tenge --

Aktyubinsk	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	9.7	5.8	9.7	5.8	206.4	123.6	206.4	123.6
2. Architecture	16.3	10.9	16.3	10.9	346.2	232.3	346.2	232.3
3. Equipment	46.1	6.9	46.1	6.9	980.4	146.1	980.4	146.1
Total	72.1	23.6	72.1	23.6	1,532.9	502.0	1,532.9	502.0
Foreign+Local		96		96		2,035		2,035

Aktyubinsk	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	206.4	123.6	638.6	382.5	1,021.1
2. Architecture	346.2	232.3	1,071.2	718.7	1,789.9
3. Equipment	980.4	146.1	3,033.3	452.1	3,485.5
Total	1,532.9	502.0	4,743.1	1,553.3	6,296.4
Foreign+Local		2,035		6,296	6,296

Note: Local portion are produced multiplying the conversion factor of 0.82.

Aktyubinsk 1.4.1 Estimate of Operating and Maintenance Cost -- Financial -- (Mil. Tenge)

Aktyubinsk	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	1,105.1	0.010	11.1
2. Architecture	1,947.6	0.010	19.5
3. Equipment	3,584.7	0.040	143.4
Total	6,637.4	-	173.9

Aktyubinsk 1.4.2 Estimate of Operating and Maintenance Cost -- Economic -- (Mil. Tenge)

Aktyubinsk	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	1,021.1	0.010	10.2
2. Architecture	1,789.9	0.010	17.9
3. Equipment	3,485.5	0.040	139.4
Total	6,296.4	-	167.5

Almaty 1.1

Estimated Construction Cost in US Dollars

Almaty	1997		1998		1999		2000	
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)
1. Civil	414	311.5	414	312	9,031	6,794	9,031	6,794
2. Architecture	883.2	722.6	1,283	723	19,265	15,762	19,265	15,762
3. Equipment	874.1	200	874	200	19,065	4,362	19,065	4,362
Total	2,171	1,234	2,571	1,234	47,361	26,919	47,361	26,919

Almaty	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	9,031	6,794	27,920	21,006	48,926
2. Architecture	19,265	15,762	59,962	48,732	108,694
3. Equipment	19,065	4,362	58,943	13,487	72,430
Total	47,361	26,919	146,825	83,225	230,050

Almaty 1.2

Estimated Financial Construction Cost
-- in Million Tenge --

Almaty	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	29	22	29	22	635	478	635	478
2. Architecture	62	51	90	51	1,354	1,108	1,354	1,108
3. Equipment	61	14	61	14	1,348	307	1,348	307
Total	153	87	181	87	3,329	1,892	3,329	1,892

Almaty	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	635	478	1,963	1,477	3,439
2. Architecture	1,354	1,108	4,215	3,426	7,641
3. Equipment	1,348	307	4,144	948	5,092
Total	3,329	1,892	10,322	5,851	16,173

Note: KAZT/US\$=70.3

Almaty 1.3

Estimated Economic Construction Cost
-- in Million Tenge --

Almaty	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	29.1	18.0	29.1	18.0	634.9	391.7	634.9	391.7
2. Architecture	62.1	41.7	90.2	41.7	1,354.3	908.6	1,354.3	908.6
3. Equipment	61.4	11.5	61.4	11.5	1,340.3	251.5	1,340.3	251.5
Total	152.6	71.1	180.8	71.1	3,329.5	1,551.8	3,329.5	1,551.8
Foreign+Local		224		252		4,881		4,881

Almaty	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	634.9	391.7	1,962.8	1,210.9	3,173.7
2. Architecture	1,354.3	908.6	4,215.3	2,809.2	7,024.5
3. Equipment	1,340.3	251.5	4,143.7	777.5	4,921.2
Total	3,329.5	1,551.8	10,321.8	4,797.6	15,119.4
Foreign+Local		4,881		15,119	15,119

Note: Local portion are produced multiplying the conversion factor of 0.82.

Almaty 1.4.1 Estimate of Operating and Maintenance Cost

-- Financial -- (Mil. Tenge)

Almaty	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	3,439.5	0.010	34.4
2. Architecture	7,641.2	0.010	76.4
3. Equipment	5,091.8	0.040	203.7
Total	16,172.5	-	314.5

Almaty 1.4.2 Estimate of Operating and Maintenance Cost

-- Economic -- (Mil. Tenge)

Almaty	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	3,173.7	0.010	31.7
2. Architecture	7,024.5	0.010	70.2
3. Equipment	4,921.2	0.040	196.8
Total	15,119.4	-	298.8

Atryau 1.1 Estimated Construction Cost in US Dollars

Atryau	1997		1998		1999		2000	
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)
1. Civil	130.5	82.2	131	82	2,825	1,779	2,825	1,779
2. Architecture	326.1	266.8	326	267	7,861	5,777	7,861	5,777
3. Equipment	794	110	794	110	17,202	2,381	17,202	2,381
Total	1,251	459	1,251	459	27,888	9,938	27,888	9,938

Atryau	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	2,825	1,779	8,737	5,502	14,239
2. Architecture	7,861	5,777	21,835	17,865	39,700
3. Equipment	17,202	2,381	53,195	7,364	60,559
Total	27,888	9,938	83,767	30,731	114,498

Atryau 1.2 Estimated Financial Construction Cost -- In Million Tenge --

Atryau	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	9	6	9	6	199	125	199	125
2. Architecture	23	19	23	19	496	406	496	406
3. Equipment	56	8	56	8	1,209	167	1,209	167
Total	88	32	88	32	1,904	699	1,904	699

Atryau	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	199	125	614	387	1,001
2. Architecture	496	406	1,535	1,256	2,791
3. Equipment	1,209	167	3,740	518	4,257
Total	1,904	699	5,889	2,168	8,049

Note: KAZT/US\$=70.3

Atryau 1.3 Estimated Economic Construction Cost -- in Million Tenge --

Atryau	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	9.2	4.7	9.2	4.7	198.6	102.6	198.6	102.6
2. Architecture	22.9	15.4	22.9	15.4	496.4	333.0	496.4	333.0
3. Equipment	55.8	6.3	55.8	6.3	1,209.3	137.3	1,209.3	137.3
Total	87.9	26.5	87.9	26.5	1,904.3	572.9	1,904.3	572.9
Foreign+Local	114		114		2,477		2,477	

Atryau	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	198.6	102.6	614.2	317.2	931.4
2. Architecture	496.4	333.0	1,535.0	1,029.9	2,564.9
3. Equipment	1,209.3	137.3	3,739.6	424.5	4,164.1
Total	1,904.3	572.9	5,888.8	1,771.5	7,660.4
Foreign+Local	2,477		7,660		7,660

Note: Local portion are produced multiplying the conversion factor of 0.82.

Atryau 1.4.1 Estimate of Operating and Maintenance Cost -- Financial -- (Mil. Tenge)

Atryau	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	1,001.0	0.010	10.0
2. Architecture	2,790.9	0.010	27.9
3. Equipment	4,257.3	0.040	170.3
Total	8,049.2	-	208.2

Atryau 1.4.2 Estimate of Operating and Maintenance Cost -- Economic -- (Mil. Tenge)

Atryau	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	931.4	0.010	9.3
2. Architecture	2,564.9	0.010	25.6
3. Equipment	4,164.1	0.040	166.6
Total	7,660.4	-	201.5

Pavlodar 1.1

Estimated Construction Cost in US Dollars

Pavlodar	1997		1998		1999		2000	
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)
1. Civil	143.3	102	143	102	3,122	2,222	3,122	2,222
2. Architecture	271.4	222.1	271	222	5,914	4,839	5,914	4,839
3. Equipment	761.6	140.5	762	141	16,595	3,060	16,595	3,060
Total	1,176	465	1,176	465	25,631	10,121	25,631	10,121

Pavlodar	2001		Total		Grand Total (Th. US\$)
	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	Foreign Portion (Th. US\$)	Local Portion (Th. US\$)	
1. Civil	3,122	2,222	9,652	6,870	16,522
2. Architecture	5,914	4,839	18,285	14,960	33,245
3. Equipment	16,595	3,060	51,308	9,462	60,770
Total	25,631	10,121	79,244	31,292	110,536

Pavlodar 1.2

Estimated Financial Construction Cost
-- in Million Tenge --

Pavlodar	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	10.1	7.2	10.1	7.2	219.5	156.2	219.5	156.2
2. Architecture	19.1	15.6	19.1	15.6	415.8	340.2	415.8	340.2
3. Equipment	53.5	9.9	53.5	9.9	1,166.6	215.1	1,166.6	215.1
Total	82.7	32.7	82.7	32.7	1,801.8	711.5	1,801.8	711.5

Pavlodar	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	219.5	156.2	678.5	483.0	1,161.5
2. Architecture	415.8	340.2	1,285.4	1,051.7	2,337.1
3. Equipment	1,166.6	215.1	3,606.9	665.2	4,272.1
Total	1,801.8	711.5	5,570.9	2,199.8	7,770.7

Note: KA2T/US\$=70.3

Pavlodar 1.3

Estimated Economic Construction Cost
-- in Million Tenge --

Pavlodar	1997		1998		1999		2000	
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion	Foreign Portion	Local Portion
1. Civil	10.1	5.9	10.1	5.9	219.5	128.1	219.5	128.1
2. Architecture	19.1	12.8	19.1	12.8	415.8	278.9	415.8	278.9
3. Equipment	53.5	8.1	53.5	8.1	1,166.6	176.4	1,166.6	176.4
Total	82.7	26.8	82.7	26.8	1,801.8	583.4	1,801.8	583.4
Foreign+Local		109		109		2,385		2,385

Pavlodar	2001		Total		Grand Total
	Foreign Portion	Local Portion	Foreign Portion	Local Portion	
1. Civil	219.5	128.1	678.5	396.0	1,074.5
2. Architecture	415.8	278.9	1,285.4	862.4	2,147.8
3. Equipment	1,166.6	176.4	3,606.9	545.4	4,152.4
Total	1,801.8	583.4	5,570.9	1,803.9	7,374.7
Foreign+Local		2,385		7,375	7,375

Note: local portion are produced multiplying the conversion factor of 0.82.

Pavlodar 1.4.1 Estimate of Operating and Maintenance Cost
-- Financial -- (Mil. Tenge)

Pavlodar	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	1,161.5	0.010	11.6
2. Architecture	2,337.1	0.010	23.4
3. Equipment	4,272.1	0.040	170.9
Total	7,770.7	-	205.9

Pavlodar 1.4.2 Estimate of Operating and Maintenance Cost
-- Economic -- (Mil. Tenge)

Pavlodar	Financial Cost	Factors	Estimated Maint. Cost
1. Civil	1,074.5	0.010	10.7
2. Architecture	2,147.8	0.010	21.5
3. Equipment	4,152.4	0.040	166.1
Total	7,374.7	-	198.3