

KINGDOM OF NEPAL

DEVELOPMENT STUDY  
OF  
CIVIL AVIATION  
IN  
NEPAL

APPENDIX

SEPTEMBER 1989

JAPAN INTERNATIONAL COOPERATION AGENCY

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Appendix to Chapter 2

Air Traffic Analysis and Demand Forecast



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Table 2.2.1  
Forecasts of scheduled international  
passenger traffic for Asia/Pacific airlines -- to 1994.

Region of airline registration	Passenger-kilometres (millions)			Average annual growth (per cent)		Distribution of traffic (per cent)		
	Actual		Forecast	Actual	Forecast*			
	1974	1984	1994	1974-1984	1984-1994	1974	1984	1994
Western	4 755	18 189	47 000	14.4	10.0	11	13	12
Central	10 069	45 675	130 000	16.3	11.0	23	32	32
North-Eastern	15 657	53 333	173 000	13.0	12.5	37	38	43
South-Eastern	12 387	23 184	50 000	6.5	8.0	29	17	13
Region total	42 868	140 381	400 000	12.6	11.0	100	100	100
World	250 394	553 009		8.2				

\*Rounded to the nearest 0.5 per cent.

Source: ICAO Special Report;  
Air Passenger and Freight Transport  
- the Asia/Pacific Region, July 1986, P 33, Table II-2

Table 2.2.2  
INTERNATIONAL SCHEDULED PASSENGERS

Region	Number of country pairs	Base Year	Forecast Annual					Forecast Traffic Volumes				Average
		Traffic	Percent Changes									Annual
		1986	1987	1988	1989	1990/91	1987	1988	1989	1991	Rate of Growth	
		(000)	(%)	(%)	(%)	(%)	(000)	(000)	(000)	(000)	(%)	
North America	56	32,987	11.8	5.8	4.6	4.6	36,895	39,043	40,821	44,668	6.3	
Central America	20	5,621	4.8	5.1	6.1	4.6	5,889	6,190	6,566	7,190	5.0	
Caribbean	39	3,665	14.8	7.7	4.5	4.8	4,208	4,532	4,737	5,208	7.3	
Upper South America	42	1,228	3.7	4.6	5.4	5.1	1,274	1,333	1,406	1,553	4.8	
Lower South America	56	3,496	2.8	6.4	7.4	5.5	3,593	3,823	4,105	4,566	5.5	
Middle East	336	21,028	3.4	4.6	4.4	4.4	21,753	22,752	23,752	25,893	4.3	
Europe	724	95,925	7.5	5.7	4.7	4.7	103,116	109,017	114,181	125,090	5.5	
N. Western Africa	70	6,189	-3.3	7.1	2.5	4.2	5,985	6,411	6,569	7,133	2.9	
N. Eastern Africa	32	1,127	-2.4	2.3	4.9	5.9	1,100	1,125	1,181	1,324	3.3	
Eastern Africa	105	1,817	6.2	4.6	4.2	4.3	1,929	2,018	2,102	2,286	4.7	
Central/West. Africa	129	2,993	1.3	3.6	5.4	5.2	3,032	3,141	3,310	3,660	4.1	
Southern Africa	53	1,432	2.9	3.8	4.8	5.3	1,473	1,528	1,601	1,775	4.4	
Indian sub-continent	100	8,516	3.4	4.6	4.7	4.6	8,804	9,209	9,641	10,546	4.4	
Southeast Asia	136	18,265	7.1	6.8	6.0	6.2	19,564	20,897	22,144	24,993	6.5	
Northeast Asia	96	24,930	9.5	7.9	7.1	7.6	27,310	29,460	31,565	36,539	7.9	
Southwest Pacific	51	6,762	9.1	7.1	6.9	7.0	7,377	7,898	8,446	9,664	7.4	

Source: Passenger Traffic Forecast 1987-1991 IATA, Sep. 1987, P 23

Table 2.3.1 Airport Ranking by Total Traffic Volume

	86/87	1990	1995	2000	2005	2010
1 KATHMANDU	1	1	1	1	1	1
2 BHAIRAWA	10	3	4	5	5	5
3 BIRATNAGAR	3	3	4	4	4	4
4 NEPALGUNJ	2	2	2	2	2	2
5 POKHARA	4	4	3	3	3	3
6 BHARATPUR	39	39	41	41	41	41
7 DHANAGADHI	8	8	7	8	9	9
8 JANAKPUR	22	24	26	29	29	31
9 RAJBIRAJ	36	37	39	39	39	39
10 SIMRA	11	16	17	17	18	19
11 SUKHEH	5	7	13	13	13	14
12 TUMLINGTAR	9	10	9	9	8	8
13 BAITADI	25	25	24	24	24	24
14 BACLUNG	14	12	16	19	21	23
15 BAJHANG	24	23	23	23	23	22
16 BAJURA	23	21	21	20	19	18
17 BHOJPUR	18	19	18	16	16	16
18 CHANDRAGADHI	34	35	38	38	38	38
19 DANG	32	32	34	34	34	33
20 DARCHULA	31	31	33	33	32	30
21 DHORPATANG	28	28	29	26	26	26
22 DOLPA	15	13	20	21	20	20
23 DOTI	40	40	42	42	42	42
24 GORKHA	38	38	40	40	40	40
25 JIRI	20	20	19	18	17	17
26 JOMSOM	17	18	15	15	15	15
27 JUMLA	12	11	10	10	12	12
28 LAMIDANDA	40	40	42	42	42	42
29 LANGTANG	7	9	8	7	7	7
30 LUKLA	19	17	14	14	14	13
31 MAHENDRANAGAR	35	34	36	36	36	36
32 MANANG	13	15	12	12	10	11
33 MECHAULI	33	33	35	35	35	35
34 PHAPLU	26	26	27	28	30	32
35 RAMECHAP	37	36	37	37	37	37
36 ROLPA	16	14	11	11	11	10
37 RUKUMKOT	21	22	22	22	22	21
38 RUMJATAR	6	5	6	6	6	6
39 SANFEBAGAR	27	27	28	27	27	27
40 SIMIKOT	40	40	40	25	25	25
41 SYANGBOCHE	29	29	30	30	28	28
42 TAPLEJUNG	30	30	32	32	33	34
43 TIKAPUR	40	40	40	31	31	29
44 MUGU	40	40	42	42	42	42
45 BARDIYA	0	0	0	0	0	0
46 MOUNTAIN	0	0	0	0	0	0
47 FOREIGN	0	0	0	0	0	0

Table 2.2.3  
Air Tourist Arrivals of TIA  
by Major Nationalities

	1977	1987	Annual Growth Rate (%)
	(1)	(2)	(%)
USA	14087	20529	3.8
Canada	2419	3894	4.9
France	12304	12550	0.2
Germany	8953	13023	3.8
Italy	4311	8194	6.6
U.K	7749	14589	6.5
Other Europe	13137	24926	6.6
Japan	7613	12624	5.2
Australia	5956	8573	3.7
All Others	10600	27747	8.1
India	23052	58964	7.9
Total	110180	205611	6.4

Note: This table is prepared from Table 8, 11 and 14 in the "Nepal Tourism Statistics 1987".

Talbe 2.3.2 Total Domestic Passengers before Adjustment of Air Links

(1000 Pax , arrival and departure  
, scheduled and non-scheduled)

	86/87	1990	1995	2000	2005	2010
1 KATHMANDU	203.2	229.1	281.9	334.6	390.1	445.0
2 BHATRAHWA	12.9	16.9	34.9	42.2	50.3	58.7
3 BIRATNAGAR	52.7	63.3	62.4	72.5	83.3	95.6
4 NEPALGUNJ	58.6	73.4	81.3	96.7	113.0	131.5
5 POKHARA	46.5	54.0	65.1	77.8	91.8	105.2
6 BHARATPUR	0.1	0.1	0.1	0.0	0.0	0.0
7 DHANGADHI	14.1	19.9	20.2	21.1	24.3	27.8
8 JANAKPUR	6.0	6.7	5.9	4.9	4.3	3.8
9 RAJBIRAJ	0.4	0.3	0.2	0.2	0.1	0.1
10 SIMRA	11.5	11.7	12.9	14.0	15.0	16.1
11 SURKHET	15.0	18.9	14.9	17.5	20.1	23.0
12 TUMLINGTAR	13.1	14.9	18.0	21.1	24.4	28.2
13 BAITADI	4.8	6.1	7.6	9.1	10.7	12.6
14 BAGLUNG	10.6	14.1	13.0	12.6	12.7	13.0
15 BAJHANG	4.9	7.1	8.5	10.0	11.5	13.4
16 BAJURA	5.1	8.2	10.2	12.1	14.2	16.5
17 BHOJPUR	8.6	10.5	12.5	14.5	16.7	19.2
18 CHANDRAGADHI	0.6	0.5	0.4	0.3	0.2	0.2
19 DANG	1.4	1.4	1.6	1.8	2.0	2.3
20 DARCHULA	1.4	1.9	2.4	3.0	3.6	4.3
21 DHORPATANG	0.0	0.0	0.0	0.0	0.0	0.0
22 DOLPA	2.9	3.7	4.6	5.7	6.7	8.0
23 DOTI	10.6	12.9	10.6	11.5	13.0	14.6
24 GORKHA	0.0	0.0	0.0	0.0	0.0	0.0
25 JIRI	0.2	0.1	0.1	0.1	0.1	0.1
26 JOMSOM	7.9	9.6	11.5	13.5	15.7	17.9
27 JUMLA	9.2	11.0	13.1	15.1	17.3	19.9
28 LAMIDANDA	11.1	14.7	17.0	19.3	21.9	25.0
29 LANGTANG	0.0	0.0	0.0	0.0	0.0	0.0
30 LUKLA	14.3	15.6	19.6	24.2	29.1	33.6
31 MAHENDRANAGAR	8.6	11.4	13.9	16.5	19.7	23.6
32 MANANG	0.6	0.8	0.9	1.0	1.1	1.2
33 MEGHAULI	10.8	11.8	14.9	18.6	22.5	26.1
34 PHAPLU	0.8	1.1	1.2	1.4	1.6	1.7
35 RAMECHAP	3.3	4.7	5.3	5.4	4.2	3.2
36 ROLPA	0.2	0.4	0.4	0.3	0.4	0.4
37 RUKUMKOT	10.0	12.3	15.4	18.7	22.2	26.2
38 RUMJATAR	6.8	7.8	9.2	10.4	11.8	13.5
39 SANFEBAGAR	14.8	20.2	25.0	27.1	30.7	35.0
40 SIMIKOT	2.9	4.1	4.8	5.4	6.1	6.9
41 SYANGBOCHE	0.0	0.0	6.7	8.3	10.1	11.6
42 TAPLEJUNG	2.6	3.5	4.1	4.7	5.4	6.2
43 TIKAPUR	1.8	2.1	2.6	3.1	2.4	1.9
44 MUGU	0.0	0.0	2.7	3.3	3.9	4.5
45 BARDIYA	0.0	0.0	0.0	0.0	0.0	0.0
46 MOUNTAIN	36.8	40.1	50.8	63.2	76.7	88.8
47 FOREIGN	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	591.4	707.0	837.7	979.6	1134.4	1297.6

Note: "Total"excludes"Mountain"

Table.2.3.3

Annual Growth Rate of Total Domestic Passengers (%)

Table.2.3.4

Nepalese Domestic Passengers before Adjustment  
(1000 Pax, arrival and departure  
, scheduled and non-scheduled)

	87/90	90/95	95/00	00/05	05/10	86/87	1990	1995	2000	2005	2010	
1 KATHMANDU	3.4	4.2	3.5	3.1	2.7	1.0	120.4	138.0	144.1	162.8	181.5	203.4
2 BHAIRAWA	8.1	15.6	3.9	3.6	3.1	2.0	12.9	16.9	20.9	24.8	29.1	34.2
3 BIRATNAGAR	5.4	-0.3	3.0	2.8	2.8	3.0	52.7	63.3	62.4	72.5	83.3	95.6
4 NEPALGUNJ	6.7	2.1	3.5	3.2	3.1	4.0	58.6	73.4	81.3	96.7	113.0	131.5
5 POKHARA	4.4	3.8	3.6	3.4	2.8	5.0	17.3	22.2	24.8	27.6	30.7	34.5
6 BHARATPUR	-5.0	-5.0	-5.0	-5.0	-5.0	6.0	0.1	0.1	0.1	0.0	0.0	0.0
7 DHANGADHI	10.3	0.3	0.9	2.8	2.7	7.0	14.1	19.9	20.2	21.1	24.3	27.8
8 JANAKPUR	3.3	-2.6	-3.4	-2.9	-2.3	8.0	6.0	5.7	5.9	4.9	4.3	3.8
9 RAJBIRAJ	-5.0	-5.0	-5.0	-5.0	-5.0	9.0	0.4	0.3	0.2	0.2	0.1	0.1
10 SIMRA	0.5	2.0	1.6	1.4	1.4	10.0	11.5	11.7	12.9	14.0	15.0	16.1
11 SURKHET	6.8	-4.7	3.3	2.8	2.7	11.0	15.0	18.9	14.9	17.5	20.1	23.0
12 TUMLINGTAR	3.9	3.8	3.2	3.0	2.9	12.0	12.5	14.3	17.2	20.1	23.2	26.8
13 BAITADI	7.3	4.4	3.6	3.4	3.3	13.0	4.8	6.1	7.6	9.1	10.7	12.6
14 BAGLUNG	8.6	-1.6	-0.6	0.2	0.4	14.0	6.6	9.8	7.6	5.9	4.6	3.5
15 BAJHANG	11.1	4.4	3.1	3.0	3.0	15.0	4.9	7.1	8.5	10.0	11.5	13.4
16 BAJURA	14.2	4.4	3.5	3.2	3.1	16.0	5.1	8.2	10.2	12.1	14.2	16.5
17 BHOJPUR	6.0	3.5	3.0	2.9	2.9	17.0	8.6	10.5	12.5	14.5	16.7	19.2
18 CHANDRAGADHI	-5.0	-5.0	-5.0	-5.0	-5.0	18.0	0.6	0.5	0.4	0.3	0.2	0.2
19 DANG	1.2	1.9	2.2	2.3	2.5	19.0	1.4	1.4	1.6	1.8	2.0	2.3
20 DARCHULA	8.1	5.2	4.3	3.8	3.7	20.0	1.4	1.9	2.4	3.0	3.6	4.3
21 DHORPATANG	0.0	0.0	0.0	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0
22 DOLPA	7.7	4.5	4.0	3.6	3.4	22.0	2.9	3.7	4.6	5.7	6.7	8.0
23 DOTI	6.0	-4.0	1.8	2.4	2.3	23.0	10.6	12.9	10.6	11.5	13.0	14.6
24 GORKHA	0.0	0.0	0.0	0.0	0.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0
25 JIRI	-3.8	-2.8	-2.0	-1.2	-0.8	25.0	0.1	0.1	0.1	0.1	0.1	0.0
26 JOMSOM	5.9	3.6	3.4	3.1	2.6	26.0	4.3	5.7	6.5	7.4	8.3	9.3
27 JUMLA	5.0	3.6	2.9	2.8	2.7	27.0	9.2	11.0	13.1	15.1	17.3	19.9
28 LAMIDANDA	8.4	3.0	2.5	2.6	2.7	28.0	11.1	14.7	17.0	19.3	21.9	25.0
29 LANGTANG	0.0	0.0	0.0	0.0	0.0	29.0	0.0	0.0	0.0	0.0	0.0	0.0
30 LUKLA	2.6	4.7	4.3	3.8	2.9	30.0	1.4	1.6	1.9	2.1	2.3	2.6
31 MAHENDRANAGAR	8.5	4.1	3.4	3.7	3.6	31.0	8.6	11.4	13.9	16.5	19.7	23.5
32 MANANG	9.1	2.4	1.7	1.7	1.7	32.0	0.6	0.8	0.9	1.0	1.1	1.2
33 MEGHAULI	2.6	4.8	4.5	4.0	3.0	33.0	0.2	0.3	0.3	0.4	0.5	0.5
34 PHAPLU	6.8	3.2	2.3	2.3	2.3	34.0	0.7	0.9	1.1	1.2	1.3	1.4
35 RAMECHAP	10.4	2.3	0.5	-5.0	-5.0	35.0	3.3	4.7	5.3	5.4	4.2	3.2
36 ROLPA	16.7	3.2	-5.0	1.9	2.0	36.0	0.2	0.4	0.4	0.3	0.4	0.4
37 RUKMOT	6.1	4.7	3.9	3.5	3.3	37.0	10.0	12.3	15.4	18.7	22.2	26.2
38 RUMJATAR	4.1	3.2	2.6	2.6	2.6	38.0	6.8	7.8	9.2	10.4	11.8	13.5
39 SANFEBAGAR	9.3	4.3	1.7	2.5	2.7	39.0	14.8	20.2	25.0	27.1	30.7	35.0
40 SIMIKOT	10.7	2.8	2.6	2.5	2.5	40.0	2.9	4.1	4.8	5.4	6.1	6.9
41 SYANGBOCHE	0.0	0.0	0.0	0.0	0.0	41.0	0.0	0.0	0.3	0.4	0.4	0.5
42 TAPLEJUNG	8.5	3.1	2.7	2.7	2.8	42.0	2.6	3.5	4.1	4.7	5.4	6.2
43 TIKAPUR	5.5	4.4	3.7	-5.0	-5.0	43.0	1.8	2.1	2.6	3.1	2.4	1.9
44 MUGU	0.0	0.0	0.0	0.0	0.0	44.0	0.0	0.0	0.6	0.7	0.7	0.8
45 BARDIYA	0.0	0.0	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	0.0	0.0
46 MOUNTAIN	2.5	4.8	4.5	4.0	3.0	46.0	0.7	0.8	1.0	1.1	1.2	1.4
47 FOREIGN	0.0	0.0	0.0	0.0	0.0	47.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	5.3	3.4	3.2	3.0	2.7		447.0	549.6	593.4	675.2	764.5	869.2



Table 2.3.5-1 Growth Rate of Nepalese Domestic Passengers Before The Influence of Road Improvement ( % )

	86/87	1990	1995	2000	2005	2010	86/87	1990	1995	2000	2005	2010	
CHANDRAGADHI	1.00	0.96	4.70	4.26	3.77	3.64	MAHENDRANAGAR	61.00	5.61	6.72	3.83	3.22	3.01
BIRATNAGAR	2.00	3.74	5.11	2.74	2.43	2.35	BAJURA	62.00	13.17	4.35	3.48	3.16	3.10
BIRATNAGAR	3.00	9.02	3.85	2.85	3.89	3.89	DARCHULA	63.00	7.43	4.53	3.83	3.41	3.30
BIRATNAGAR	4.00	5.01	4.07	3.53	3.30	3.23	DANG	64.00	4.41	4.41	3.81	3.37	3.25
BIRATNAGAR	5.00	6.83	3.75	3.40	3.15	3.12	SIMIKOT	65.00	11.29	1.44	1.17	1.27	1.36
BIRATNAGAR	6.00	5.70	3.72	3.36	3.13	3.11	SURKHET	66.00	7.88	4.08	3.51	3.24	3.21
BIRATNAGAR	7.00	9.06	3.32	3.01	2.90	2.94	DANG	67.00	0.00	0.00	0.00	0.00	0.00
TUMLINGTAR	8.00	2.43	3.30	2.40	2.34	2.40	TIKAPUR	68.00	0.00	0.00	0.00	0.00	0.00
LAMDANDA	9.00	6.57	2.39	1.60	1.78	1.98	SANFEBAGAR	69.00	6.96	4.15	3.62	3.29	3.22
BHOJPUR	10.00	4.36	3.00	2.19	2.19	2.29	BAJURA	70.00	16.09	4.65	3.77	3.39	3.30
RAJBIRAJ	11.00	16.87	4.27	3.12	2.86	2.83	DHANGADHI	71.00	11.75	4.44	3.85	2.42	2.35
TAPLEJUNG	12.00	6.72	2.57	1.79	1.92	2.08	BAJHANG	72.00	13.39	3.99	3.32	3.12	3.13
LUKLA	13.00	3.62	3.08	2.05	2.09	2.21	DOTI	73.00	8.70	4.98	2.93	2.58	2.47
RUNJATAR	14.00	3.16	2.93	2.08	2.12	2.23	MAHENDRANAGAR	74.00	9.06	6.82	5.57	3.27	3.04
RUNJATAR	15.00	3.95	2.86	2.63	2.55	2.60	MAHENDRANAGAR	75.00	6.49	5.76	4.74	2.89	2.76
PHAPLU	16.00	7.53	2.94	1.97	2.04	2.17	MAHENDRANAGAR	76.00	9.70	5.12	4.35	3.88	3.75
KATHMANDU	17.00	1.07	4.44	2.74	2.58	2.60	MAHENDRANAGAR	77.00	11.41	4.62	3.81	3.55	3.53
KATHMANDU	18.00	0.67	2.90	2.25	2.05	2.02	BAITADI	78.00	8.06	5.01	4.16	3.79	3.71
KATHMANDU	19.00	1.90	4.33	3.26	2.97	2.92	DARCHULA	80.00	—	—	4.65	4.06	3.88
KATHMANDU	20.00	0.83	4.62	3.36	3.05	3.09	SYANGBOCHE	81.00	—	—	1.92	1.80	1.82
KATHMANDU	21.00	5.71	4.65	3.46	3.12	3.05	MUGU	82.00	0.00	0.00	1.37	1.33	1.36
KATHMANDU	22.00	4.33	3.17	2.34	2.39	2.37	BAIDIYA				0.00	0.00	0.00
KATHMANDU	23.00	10.28	2.31	1.71	1.68	1.72							
KATHMANDU	24.00	4.94	4.53	3.46	3.12	3.05							
KATHMANDU	25.00	6.93	5.24	4.06	3.58	3.45							
KATHMANDU	26.00	9.39	3.74	2.40	2.34	2.40							
KATHMANDU	27.00	5.83	2.51	1.82	1.77	1.82							
KATHMANDU	28.00	2.73	5.08	3.83	3.41	3.31							
KATHMANDU	29.00	5.64	5.18	2.84	2.51	2.42							
KATHMANDU	30.00	0.64	4.68	3.47	3.13	3.06							
KATHMANDU	31.00	4.81	4.21	3.17	2.90	2.87							
KATHMANDU	32.00	3.56	3.19	2.07	2.11	2.23							
KATHMANDU	33.00	0.92	5.26	3.92	3.53	3.41							
KATHMANDU	34.00	6.41	5.40	2.92	2.57	2.47							
KATHMANDU	35.00	3.57	4.01	2.01	1.87	1.87							
KATHMANDU	36.00	7.08	3.47	2.54	2.44	2.48							
KATHMANDU	37.00	5.34	3.24	2.16	2.17	2.27							
KATHMANDU	38.00	8.90	2.99	1.92	2.00	2.14							
KATHMANDU	39.00	4.07	6.20	3.32	2.90	2.77							
KATHMANDU	40.00	11.87	3.86	2.66	2.52	2.55							
KATHMANDU	41.00	9.07	2.36	1.74	1.70	1.74							
KATHMANDU	42.00	10.95	2.27	2.18	2.07	2.08							
KATHMANDU	43.00	12.60	3.87	3.02	2.82	2.81							
KATHMANDU	44.00	9.30	2.80	2.63	2.44	2.43							
KATHMANDU	45.00	8.38	5.72	4.81	4.10	3.86							
KATHMANDU	46.00	14.28	4.48	3.56	3.24	3.19							
KATHMANDU	47.00	10.20	4.97	4.28	3.73	3.56							
KATHMANDU	48.00	10.65	4.67	4.17	3.66	3.50							
KATHMANDU	49.00	16.69	3.22	2.81	1.95	2.01							
KATHMANDU	50.00	7.13	5.09	3.39	2.89	2.71							
KATHMANDU	51.00	6.32	4.79	4.11	3.60	3.45							
KATHMANDU	52.00	5.12	3.87	3.22	3.02	3.02							
KATHMANDU	53.00	10.60	2.98	2.78	2.58	2.56							
KATHMANDU	54.00	6.81	4.46	3.99	3.51	3.38							
KATHMANDU	55.00	2.59	5.84	4.88	4.16	3.91							
KATHMANDU	56.00	7.87	5.88	3.44	2.93	2.75							
KATHMANDU	57.00	5.23	4.63	2.71	2.41	2.33							
KATHMANDU	58.00	8.52	4.07	3.51	3.19	3.13							
KATHMANDU	59.00	6.84	3.88	3.24	3.02	3.02							
KATHMANDU	60.00	10.28	3.58	2.92	2.81	2.86							

Table 2.3.5-2 Growth Rate of Nepalese Domestic Passengers After The Influence of Road Improvement ( % )

	86/87	1990	1995	2000	2005	2010		1990	1995	2000	2005	2010	
CHANDRAGADHI	1.00	-5.00	-5.00	-5.00	-5.00	-5.00	NEPALGUNJ	61.00	5.61	5.00	3.83	3.22	3.01
BIRATNAGAR	2.00	3.74	-5.00	2.74	2.43	2.35	BAJURA	62.00	13.17	4.35	3.48	3.16	3.10
LAMIDANDA	3.00	9.02	3.15	2.85	2.81	2.89	NEPALGUNJ	63.00	7.43	4.53	3.83	3.41	3.30
BIRATNAGAR	4.00	5.01	4.07	3.63	3.30	3.23	DARSCHULA	64.00	4.41	4.41	3.81	3.37	3.25
BIRATNAGAR	5.00	6.82	3.75	3.40	3.15	3.12	RUKUMKOT	65.00	11.29	1.44	1.17	1.27	1.36
BIRATNAGAR	6.00	5.70	3.72	3.36	3.13	3.11	JUMLA	66.00	7.88	4.08	3.51	3.24	3.21
BIRATNAGAR	7.00	9.06	3.32	3.01	2.90	2.94	DANG	67.00	0.00	0.00	0.00	0.00	0.00
TUNLINGTAR	8.00	2.43	3.30	2.40	2.34	2.40	TIKAPUR	68.00	0.00	0.00	0.00	0.00	0.00
LAKIDANDA	9.00	6.67	2.39	1.60	1.79	1.98	TIKAPUR	69.00	6.96	4.15	3.62	5.00	5.00
BHOJPUR	10.00	4.36	3.00	2.19	2.19	2.29	TIKAPUR	70.00	16.09	4.65	3.77	3.23	3.30
KATHMANDU	11.00	-5.00	-5.00	-5.00	-5.00	-5.00	TIKAPUR	71.00	11.75	4.44	5.00	2.42	2.35
RAJBIRAJ	12.00	6.72	2.57	1.79	1.92	2.08	TIKAPUR	72.00	13.39	3.99	3.32	3.12	3.13
TAPLEJUNG	13.00	3.62	3.08	2.05	2.09	2.21	TIKAPUR	73.00	8.70	-5.00	2.93	2.58	2.47
LUKLA	14.00	3.16	2.93	2.08	2.12	2.23	TIKAPUR	74.00	8.06	6.82	5.00	3.27	3.04
RUMJATAR	15.00	3.95	2.86	2.63	2.55	2.60	TIKAPUR	75.00	6.49	5.76	5.00	2.89	2.76
RUMJATAR	16.00	7.53	2.94	1.97	2.04	2.17	TIKAPUR	76.00	9.70	5.12	4.35	3.88	3.75
PHAPLU	17.00	1.07	4.44	2.74	2.58	2.60	TIKAPUR	77.00	11.41	4.62	3.81	3.55	3.53
KATHMANDU	18.00	0.47	2.03	1.57	1.44	1.42	TIKAPUR	78.00	8.06	5.01	4.16	3.79	3.71
KATHMANDU	19.00	1.90	-5.00	-5.00	-5.00	-5.00	TIKAPUR	79.00	8.63	5.59	4.65	4.06	3.88
KATHMANDU	20.00	-5.00	-5.00	-5.00	-5.00	-5.00	TIKAPUR	80.00	-	-	1.92	1.30	1.82
KATHMANDU	21.00	5.71	4.65	3.46	3.12	3.05	TIKAPUR	81.00	-	-	1.37	1.33	1.36
KATHMANDU	22.00	-5.00	-5.00	-5.00	-5.00	-5.00	TIKAPUR	82.00	0.00	0.00	0.00	0.00	0.00
KATHMANDU	23.00	10.28	2.31	1.71	1.71	1.87	TIKAPUR						
KATHMANDU	24.00	4.94	4.53	3.46	3.12	3.05	TIKAPUR						
KATHMANDU	25.00	6.93	5.24	4.06	3.58	3.45	TIKAPUR						
KATHMANDU	26.00	9.39	-5.00	-5.00	-5.00	-5.00	TIKAPUR						
KATHMANDU	27.00	5.83	2.51	1.82	1.77	1.82	TIKAPUR						
KATHMANDU	28.00	2.73	5.08	3.93	3.41	3.31	TIKAPUR						
KATHMANDU	29.00	5.64	-3.00	-2.84	2.51	2.42	TIKAPUR						
KATHMANDU	30.00	-5.00	-5.00	-5.00	-5.00	-5.00	TIKAPUR						
KATHMANDU	31.00	4.81	4.21	3.17	2.90	2.87	TIKAPUR						
KATHMANDU	32.00	3.56	3.19	2.07	2.11	2.23	TIKAPUR						
KATHMANDU	33.00	0.92	5.26	3.97	-5.00	-5.00	TIKAPUR						
KATHMANDU	34.00	6.41	-5.00	2.92	2.57	2.47	TIKAPUR						
KATHMANDU	35.00	3.67	5.00	2.01	1.87	1.87	TIKAPUR						
KATHMANDU	36.00	7.08	3.47	2.54	2.44	2.45	TIKAPUR						
KATHMANDU	37.00	5.34	3.24	2.16	2.17	2.27	TIKAPUR						
KATHMANDU	38.00	8.90	2.99	1.92	2.00	2.14	TIKAPUR						
KATHMANDU	39.00	4.07	-5.00	3.32	2.90	2.77	TIKAPUR						
KATHMANDU	40.00	11.87	3.86	2.66	2.52	2.55	TIKAPUR						
KATHMANDU	41.00	9.07	2.36	1.74	1.70	1.74	TIKAPUR						
KATHMANDU	42.00	10.95	2.27	-5.00	-5.00	-5.00	TIKAPUR						
KATHMANDU	43.00	12.60	-5.00	-5.00	-5.00	-5.00	TIKAPUR						
KATHMANDU	44.00	9.30	2.80	2.63	2.44	2.43	TIKAPUR						
KATHMANDU	45.00	8.38	5.72	4.81	4.10	3.86	TIKAPUR						
KATHMANDU	46.00	14.28	-5.00	-5.00	-5.00	-5.00	TIKAPUR						
KATHMANDU	47.00	10.20	4.97	4.28	3.73	3.56	TIKAPUR						
KATHMANDU	48.00	10.65	4.67	4.17	3.66	3.50	TIKAPUR						
KATHMANDU	49.00	16.69	3.22	-5.00	1.95	2.01	TIKAPUR						
KATHMANDU	50.00	7.13	-5.00	3.39	2.89	2.71	TIKAPUR						
KATHMANDU	51.00	6.32	4.79	4.11	3.60	3.45	TIKAPUR						
KATHMANDU	52.00	5.12	3.87	3.22	3.02	3.02	TIKAPUR						
KATHMANDU	53.00	10.60	2.98	2.78	2.58	2.56	TIKAPUR						
KATHMANDU	54.00	6.81	4.46	3.98	3.51	3.38	TIKAPUR						
KATHMANDU	55.00	2.59	5.84	4.88	5.00	5.00	TIKAPUR						
KATHMANDU	56.00	7.87	-5.00	3.44	2.93	2.75	TIKAPUR						
KATHMANDU	57.00	5.23	-5.00	2.71	2.41	2.33	TIKAPUR						
KATHMANDU	58.00	8.52	4.07	3.51	3.19	3.13	TIKAPUR						
KATHMANDU	59.00	6.84	3.88	3.24	3.02	3.02	TIKAPUR						
KATHMANDU	60.00	10.28	3.58	2.92	2.81	2.86	TIKAPUR						

Table 2.3.6

Planned Future Population in the Area Influenced by Each Airport (1000)

	1990	1995	2000	2005	2010
KATHMANDU	915	994	1012	1027	1040
BHAIRAHWA	531	609	682	747	809
BIRATNAGAR	825	942	1051	1147	1239
NEPALGUNJ	291	332	369	402	433
POKHARA	279	305	328	348	365
BHARATPUR	352	388	417	442	465
DHANGADHI	405	470	531	586	638
JANAKPUR	532	573	609	639	667
RAJBIRAJ	463	498	519	536	562
SIRRA	408	444	471	494	515
SUKHET	235	269	302	331	359
TUMLINGTAR	131	130	128	126	125
BAITADI	192	191	185	180	176
BAGLUNG	244	253	251	249	248
BAJHANG	133	131	125	120	117
BAJURA	85	89	90	91	92
BHOJPUR	193	188	182	177	173
CHANDRAGADHI	760	913	1051	1197	1330
DANG	352	390	423	451	478
DARCHULA	102	107	110	112	115
DHORPATANG	162	173	182	190	196
DOLPA	24	25	26	27	28
DOTI	174	183	188	192	196
GORKHA	270	288	302	314	324
JIRI	159	157	154	152	150
JOMSOM	6	4	3	2	2
JUMLA	73	72	69	67	65
LAHIDANDA	208	195	180	169	160
LANGTANG	32	31	30	29	29
LUKLA	92	90	86	83	80
MAHENDRANAGAR	294	364	431	494	556
MANANG	6	4	3	2	2
MEGHAULI	352	388	417	442	465
PHAPLU	92	90	86	83	80
RAMECHAP	151	136	119	107	97
ROLPA	169	160	148	139	132
RUKUMKOT	162	173	182	190	196
RUNJATAR	143	138	132	127	123
SANFEBAGAR	197	200	200	200	200
SIMIKOT	15	13	11	10	9
SYANGBOCHE	92	90	86	83	80
TAPLEJUNG	121	115	108	103	98
TIKAPUR	405	470	531	586	638
MUGU	59	67	74	80	86
BARDIYA	316	378	393	405	417

Note:

- (1) This is the population planned by the National Planning Commission.
- (2) The population after 2005 is estimated by the Study Team using the trend up to 2005.

Table 2.3.7

GDP Per Capita in the Future

Year	(Rs, 1980)
1990	1854
1995	2046
2000	2275
2005	2544
2010	2872

Source: JICA Projection

Table 2.3.8

The Conversion Factor for Converting the Growth Rate of Regional Potential to the Growth Rate of Nepalese Domestic Pax

Year	Conversion Factor
1990	1.33
1995	1.22
2000	1.18
2005	1.14
2010	1.10

Source: JICA Projection based on the statistical year Book and RNAC data



Table 2.3.10 International Foreign Air Passengers  
(1000 Pax)

	Pax	Annual Growth Rate %
1987	411	2.4
1990	441	4.8
1995	557	4.5
2000	695	4.0
2005	846	3.0
2010	981	

Source: See Table 2.2.1



Table 2.3.12 Actural Domestic Passengers by Sector

			176	177	178	179	180	181	182	183	184	185	186	187
1	CHANDRAGADHI	KATHMANDU	0	0	0	0	0	0	706	969	840	746	457	639
2	BIRATNAGAR	KATHMANDU	35103	34911	33132	35213	33122	28402	25941	24647	24732	26350	24567	27567
3	BIRATNAGAR	LAMIDANDA	4819	3567	2884	3723	4661	5130	6045	5785	4150	5255	6777	8031
4	BIRATNAGAR	TUMLINGTAR	5528	6125	5362	7832	8602	9116	9338	8752	7540	4297	6451	7099
5	BIRATNAGAR	BHOJPUR	0	0	0	1106	2079	3586	3458	3927	2679	4797	5281	5630
6	BIRATNAGAR	RUMJATAR	0	0	0	0	0	213	46	0	762	2324	2023	2333
7	BIRATNAGAR	TAPLEJUNG	0	264	703	696	592	930	109	308	822	1374	1369	2005
8	TUMLINGTAR	KATHMANDU	1945	2759	2612	2904	3123	3394	3886	4051	3801	3276	5470	5988
9	LAMIDANDA	KATHMANDU	2100	2178	1775	1624	1972	2108	2693	3025	2533	3288	3031	3062
10	BHOJPUR	KATHMANDU	2422	2509	2068	3255	3404	2517	1811	1432	2571	2312	2594	2935
11	RAJBIRAJ	KATHMANDU	360	647	304	516	485	259	279	0	0	121	187	373
12	TAPLEJUNG	KATHMANDU	0	250	394	377	468	771	180	131	0	10	327	643
13	LUKLA	KATHMANDU	0	0	5705	7262	8215	9658	8850	10996	12056	12577	12630	14261
14	RUMJATAR	KATHMANDU	754	824	802	898	823	1049	245	322	1189	2786	2737	3656
15	RUMJATAR	JANAKPUR	769	785	752	429	424	336	40	0	0	744	813	807
16	PHAPLU	KATHMANDU	0	444	454	926	1123	1522	204	382	483	716	837	840
17	KATHMANDU	MOUNTAIN	22372	25074	31240	36384	26370	24286	30004	31046	34338	34856	32792	36838
18	KATHMANDU	SIPRA	24293	26959	28628	28043	24865	18561	14604	15510	15911	15820	11485	11512
19	KATHMANDU	JANAKPUR	9254	10237	10490	10782	11016	8621	6297	4680	5639	6329	3946	4538
20	KATHMANDU	BHARATPUR	5375	6231	7834	10735	10616	6782	1041	0	118	78	64	98
21	KATHMANDU	MEGHAULI	0	0	10471	9639	9244	9443	9212	6041	7964	8163	8135	10782
22	KATHMANDU	JIRI	0	964	1082	1039	853	788	798	787	594	389	240	156
23	KATHMANDU	RAMECHAP	0	0	0	0	209	412	146	871	1822	2328	2456	2653
24	KATHMANDU	POKHARA	14903	18780	23454	30959	15098	21593	19481	17544	19985	26651	24732	33105
25	KATHMANDU	BHAIRAHWA	16076	16368	18136	22655	19393	15107	10830	7503	5199	8837	8525	10143
26	KATHMANDU	BAGLUNG	428	387	447	840	1205	1295	1612	2251	1794	3067	2426	2758
27	KATHMANDU	JOMSOM	70	754	1160	796	1359	1023	451	762	776	665	923	1186
28	KATHMANDU	NEPALGUNJ	1956	3450	3637	3392	5966	6947	6077	7055	6749	9595	8684	10315
29	KATHMANDU	SURKHET	1081	1018	1746	1816	880	1871	2079	2055	2347	2392	2570	3048
30	KATHMANDU	DANG	1768	1635	1576	2849	2490	2820	3291	3520	2902	2469	1342	518
31	KATHMANDU	RUKUMKOT	392	634	713	696	787	1514	1640	2006	1610	1902	1289	1831
32	KATHMANDU	JUMLA	883	1321	869	1461	1434	2194	2276	2066	1058	872	2362	2522
33	KATHMANDU	TIKAPUR	0	0	0	0	0	0	0	0	0	195	327	435
34	KATHMANDU	DHANGADHI	591	452	721	885	1247	1404	1969	1952	1975	4525	4093	4301
35	KATHMANDU	DOTI	290	243	231	405	350	637	1318	1409	1363	1830	2331	2617
36	KATHMANDU	SANFEBAGAR	171	76	128	174	295	518	632	910	402	631	890	1049
37	KATHMANDU	BAITADI	0	0	0	0	0	0	0	0	0	96	486	573
38	KATHMANDU	BAJHANG	0	290	334	400	330	451	489	335	418	667	853	711
39	KATHMANDU	MAHENDRANAGAR	305	302	217	136	220	640	552	433	543	495	393	542
40	KATHMANDU	BAJURA	0	0	0	0	0	0	0	0	0	895	0	420
41	KATHMANDU	MANANG	0	0	0	0	0	69	44	224	290	569	481	598
42	JANAKPUR	RAMECHAP	0	0	0	0	0	66	44	380	706	645	689	664
43	POKHARA	BAGLUNG	531	422	799	746	839	1112	850	1260	820	2976	6641	6738
44	POKHARA	JOMSOM	180	654	702	2372	2290	2724	2859	1206	2207	4592	5066	6670
45	BHAIRAHWA	NEPALGUNJ	46	0	0	0	0	0	0	126	506	709	484	345
46	BHAIRAHWA	BAGLUNG	853	630	635	1156	871	775	1042	761	717	978	892	1071
47	BHAIRAHWA	RUKUMKOT	1	2	0	7	0	0	0	0	0	31	662	444
48	BHAIRAHWA	DOLPA	0	0	0	0	0	0	0	612	678	1363	640	672
49	BHAIRAHWA	ROLPA	0	0	0	0	0	0	0	54	0	128	122	206
50	NEPALGUNJ	SURKHET	3940	4341	4044	3247	4105	7622	7131	5658	8321	11177	9855	11576
51	NEPALGUNJ	RUKUMKOT	1431	2133	1964	1689	2206	3993	3507	4968	6312	6991	6765	6860
52	NEPALGUNJ	JUMLA	2124	1792	895	1089	1617	3254	2834	4226	3854	4699	6112	6071
53	NEPALGUNJ	SIMIKOT	0	0	143	109	138	232	306	806	1161	979	3147	2646
54	NEPALGUNJ	DOLPA	78	644	776	612	795	804	1215	1844	917	1158	1985	2197
55	NEPALGUNJ	TIKAPUR	0	0	0	0	0	0	0	0	0	364	197	30
56	NEPALGUNJ	DHANGADHI	214	220	182	182	432	712	624	966	604	42	48	61
57	NEPALGUNJ	DOTI	250	192	115	159	231	89	359	2074	3105	2554	2880	4081

Table 2.3.12 Continued

			176	177	178	179	180	181	182	183	184	185	186	187
58	NEPALGUNJ	SANFEBAGAR	97	4	16	117	333	141	262	2503	3718	4273	6270	6737
59	NEPALGUNJ	BAITADI	0	0	0	60	109	233	262	927	1158	1253	1218	1783
60	NEPALGUNJ	BAJHANG	0	480	571	484	619	272	469	1025	1206	936	1852	1858
61	NEPALGUNJ	MAHENDRANAGAR	76	40	28	4	52	196	150	401	482	135	215	592
62	NEPALGUNJ	BAJURA	0	0	0	0	0	0	0	0	297	1192	2672	2798
63	NEPALGUNJ	DARCHULA	0	0	0	0	0	0	0	0	0	0	270	602
64	RUKUMKOT	DANG	0	0	0	0	0	0	0	0	0	0	0	872
65	JUMLA	SIMIKOT	0	0	78	117	77	78	180	256	130	72	230	260
66	JUMLA	SURKHET	0	0	0	0	0	0	0	0	0	0	0	391
67	NEPALGUNJ	DANG	1875	1481	1177	1114	1405	2350	2303	0	0	0	0	0
68	TIKAPUR	DHANGADHI	0	0	0	0	0	0	0	0	0	38	252	0
69	TIKAPUR	SANFEBAGAR	0	0	0	0	0	0	0	0	0	186	1734	1287
70	DHANGADHI	BAJURA	0	0	0	0	0	0	0	0	945	780	1542	1928
71	DHANGADHI	SANFEBAGAR	537	259	221	225	1491	1992	2939	963	433	1972	2613	3494
72	DHANGADHI	BAJHANG	0	596	0	0	0	996	617	110	431	628	950	1221
73	DHANGADHI	DOTI	396	1071	452	870	1278	2233	3489	3079	2897	3253	2209	3063
74	DHANGADHI	MAHENDRANAGAR	279	45	0	0	0	10	0	0	0	0	35	25
75	DOTI	MAHENDRANAGAR	0	0	0	0	0	0	0	912	1372	513	749	801
76	SANFEBAGAR	MAHENDRANAGAR	0	307	179	275	360	1084	794	1293	1084	870	2663	2267
77	BAJHANG	MAHENDRANAGAR	0	0	129	378	731	1170	1331	646	0	1021	1201	1098
78	MAHENDRANAGAR	BAITADI	0	0	0	36	329	598	739	2045	2099	1449	1788	2419
79	MAHENDRANAGAR	DARCHULA	0	0	0	0	0	0	0	0	0	0	271	816

Source: RNA



Table 2.3.13

## Actual Total Domestic Passengers per Airport

	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87		
1.0 KATHMANDU	143.4	160.1	190.5	217.1	187.0	176.8	159.6	154.9	162.0	186.5	174.7	203.2	KATHMANDU	1.0
2.0 BHAIRAHWA	19.9	19.4	20.1	25.6	21.2	17.5	11.9	9.1	7.1	12.0	11.3	12.9	BHAIRAHWA	2.0
3.0 BIRATNAGAR	45.5	44.9	42.1	48.6	49.1	47.4	43.9	43.4	40.7	44.4	46.5	52.7	BIRATNAGAR	3.0
4.0 NEPALGUNJ	12.1	14.8	13.5	12.3	18.0	26.8	25.5	32.6	38.4	46.1	52.7	58.6	NEPALGUNJ	4.0
5.0 POKHARA	21.7	24.7	28.0	36.2	20.9	25.7	23.2	20.0	23.0	34.2	36.4	46.5	POKHARA	5.0
6.0 BHARATPUR	12.8	12.4	13.1	15.1	14.2	6.8	1.0	0.0	0.1	0.1	0.1	0.1	BHARATPUR	6.0
7.0 DHANGADHI	4.0	2.6	1.6	2.3	4.5	7.5	9.6	7.1	7.3	11.2	11.7	14.1	DHANGADHI	7.0
8.0 JANAKPUR	10.0	11.0	11.2	11.2	11.4	9.0	0.3	0.0	0.0	0.0	0.0	0.4	JANAKPUR	8.0
9.0 RAJBIRAJ	0.9	1.9	1.1	1.9	1.5	1.0	0.3	0.0	0.0	0.1	0.2	0.0	RAJBIRAJ	9.0
10.0 SIMRA	24.3	27.0	28.6	28.0	24.9	18.6	14.8	15.5	15.9	15.8	11.5	11.5	SIMRA	10.0
11.0 SURKHET	5.2	5.4	5.8	5.1	5.0	9.5	9.2	7.7	10.7	13.6	12.4	15.0	SURKHET	11.0
12.0 TUNLINGTAR	7.9	9.6	8.0	10.7	11.7	12.5	13.2	12.8	11.3	7.6	11.9	13.1	TUNLINGTAR	12.0
13.0 BAITADI	0.0	0.0	0.0	0.2	0.5	0.9	1.0	3.0	3.3	2.8	3.5	4.8	BAITADI	13.0
14.0 BAGLUNG	1.8	1.5	1.9	2.7	2.9	3.2	3.5	4.3	3.3	7.0	10.0	10.6	BAGLUNG	14.0
15.0 BAJHANG	0.0	1.4	1.0	1.3	1.7	2.9	2.9	2.1	2.1	3.3	4.9	4.9	BAJHANG	15.0
16.0 BAJURA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.9	4.2	5.1	BAJURA	16.0
17.0 BHOJPUR	2.8	3.2	2.1	4.4	5.5	6.1	5.3	5.4	5.3	7.1	7.9	8.6	BHOJPUR	17.0
18.0 CHANDRAGADHI	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.8	0.7	0.5	0.6	CHANDRAGADHI	18.0
19.0 DANG	4.6	4.1	3.5	5.5	4.8	6.8	5.6	3.5	2.9	2.5	1.3	1.4	DANG	19.0
20.0 DARCHULA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DARCHULA	20.0
21.0 DHORPATANG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DHORPATANG	21.0
22.0 DOLPA	0.2	1.0	0.8	0.6	0.8	0.9	1.2	2.5	1.6	2.5	2.6	2.9	DOLPA	22.0
23.0 DOTI	2.0	1.5	0.8	1.4	1.9	3.0	5.2	7.5	8.7	8.2	8.2	10.6	DOTI	23.0
24.0 GORKHA	3.4	2.8	2.7	2.5	1.2	0.8	0.8	0.0	0.0	0.0	0.0	0.0	GORKHA	24.0
25.0 JIRI	0.0	1.0	1.1	1.0	0.9	0.8	0.0	0.0	0.6	0.4	0.2	0.2	JIRI	25.0
26.0 JOMSOM	0.3	1.5	1.9	3.2	3.6	3.7	3.3	2.0	3.0	5.3	6.0	7.9	JOMSOM	26.0
27.0 JUMLA	3.0	3.3	1.8	2.7	3.1	5.5	5.3	6.5	5.0	5.6	8.7	9.2	JUMLA	27.0
28.0 LAMIDANDA	7.5	7.0	5.5	6.7	7.6	8.0	8.7	8.8	6.7	8.5	9.8	11.1	LAMIDANDA	28.0
29.0 LANGTANG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	LANGTANG	29.0
30.0 LUKLA	0.0	0.0	5.7	7.3	8.2	9.7	8.9	11.0	12.1	12.6	12.6	14.3	LUKLA	30.0
31.0 MAHENDRANAGAR	0.7	0.7	0.6	0.8	1.7	3.7	3.6	5.7	5.6	4.5	7.3	8.6	MAHENDRANAGAR	31.0
32.0 MANANG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.6	0.5	0.5	MANANG	32.0
33.0 MEGHAULI	0.0	0.0	10.5	9.6	9.2	9.4	9.2	6.0	8.0	8.2	8.1	10.8	MEGHAULI	33.0
34.0 PHAPLU	0.0	0.4	0.5	0.9	1.1	1.5	0.2	0.4	0.5	0.7	0.8	0.8	PHAPLU	34.0
35.0 RAMECHAP	0.0	0.0	0.0	0.0	0.2	0.5	0.2	1.3	2.5	3.0	3.1	3.3	RAMECHAP	35.0
36.0 ROLPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	ROLPA	36.0
37.0 RUKMKOT	1.8	2.8	2.7	2.4	3.0	5.5	5.1	7.0	7.9	8.9	8.7	10.0	RUKMKOT	37.0
38.0 RUMJATAR	1.5	1.6	1.6	1.3	1.2	1.6	0.3	0.3	2.0	5.9	5.6	6.8	RUMJATAR	38.0
39.0 SANFEBAGAR	1.8	0.6	0.5	0.8	2.5	3.7	4.6	5.7	5.6	7.9	14.2	14.8	SANFEBAGAR	39.0
40.0 SIMIKOT	0.0	0.0	0.0	0.2	0.2	0.3	0.5	1.1	1.3	1.1	3.4	2.9	SIMIKOT	40.0
41.0 SYANGBOCHE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	SYANGBOCHE	41.0
42.0 TAPLEJUNG	0.0	0.5	1.1	1.1	1.1	1.7	0.3	0.4	0.8	1.4	1.7	2.6	TAPLEJUNG	42.0
43.0 TIKAPUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TIKAPUR	43.0
44.0 MUGU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	MUGU	44.0
45.0 BARDIYA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	BARDIYA	45.0
46.0 MOUNTAIN	22.4	25.1	31.2	36.4	26.7	24.5	30.0	31.0	34.3	34.9	32.8	36.8	MOUNTAIN	46.0
47.0 FOREIGN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	FOREIGN	47.0
TOTAL	339.1	368.7	410.1	470.6	432.3	438.6	396.0	394.5	413.9	491.6	511.8	590.7	TOTAL	

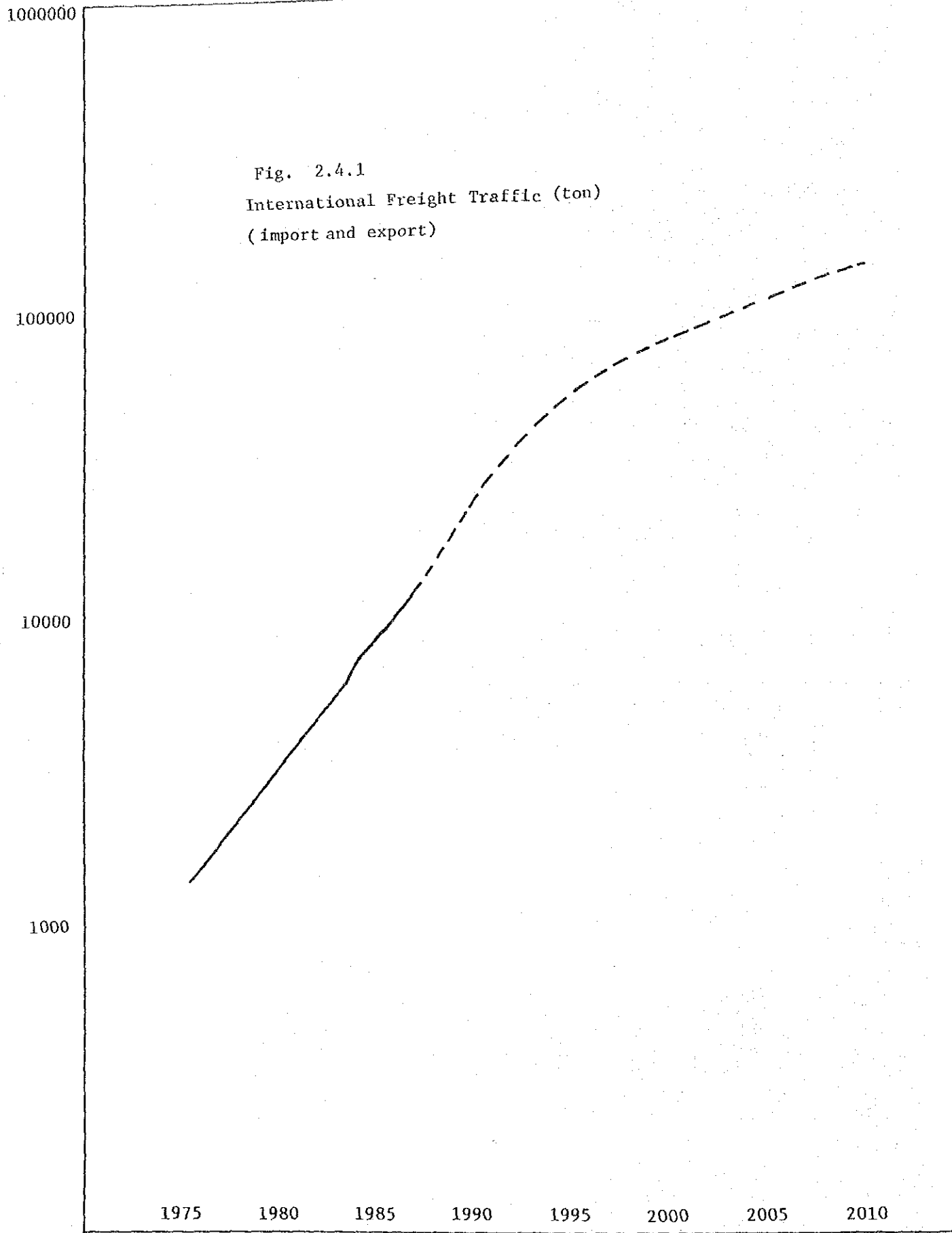


Table 2.4.1 Forecasts of scheduled international freight traffic for Asia/Pacific airlines — to 1994.

Region of airline registration	Freight tonne-kilometres (millions)			Average annual growth (per cent)		Distribution of traffic (per cent)		
	Actual		Forecast	Actual	Forecast*			
	1974	1984	1994	1974-1984	1984-1994	1974	1984	1994
Western	229	807	1 900	13.4	9.0	13	10	7
Central	261	1 881	7 600	21.8	15.0	16	23	27
North-Eastern	882	4 553	16 200	17.8	13.5	53	56	58
South-Eastern	295	876	2 300	11.5	10.0	18	11	8
Region total	1 667	8 117	28 000	17.2	13.0	100	100	100
World	11 168	28 706		9.9				

Rounded to the nearest 0.5 per cent.

Source: ICAO Special Report; Air Passenger and Freight Transport — the Asia/Pacific Region, July 1986, P35, Table II-3

Table 2.4.2 INTERNATIONAL FREIGHT TONNES

SUMMARY TABLE

Region	Number of country pairs	Base Year	Forecast Annual					Forecast Traffic Volumes				Average
		Traffic	Percent Changes									Annual
		1986	1987	1988	1989	1990/91	1987	1988	1989	1991	Rate of Growth	
		(000)	(%)	(%)	(%)	(%)	(000)	(000)	(000)	(000)	(%)	
North America	45	1,758.1	5.7	4.0	5.2	5.4	1,857.8	1,932.4	2,033.2	2,257.5	5.1	
Central America	13	27.6	3.6	3.2	3.1	3.4	28.5	29.4	30.4	32.5	3.3	
Caribbean	15	14.0	3.9	2.7	3.2	3.3	14.5	14.9	15.4	16.4	3.3	
Upper South America	30	62.2	3.5	4.4	4.2	4.6	64.4	67.2	70.0	76.6	4.3	
Lower South America	52	193.6	6.4	7.2	7.5	7.2	206.0	220.8	237.4	272.8	7.1	
Middle East	261	792.6	3.6	4.7	4.8	5.3	821.5	860.6	901.6	999.1	4.7	
Europe	560	2,986.1	4.8	4.4	4.9	4.9	3,129.0	3,265.2	3,425.8	3,768.5	4.8	
N. Western Africa	46	77.2	2.2	-1.5	4.5	4.5	79.0	77.8	81.3	88.8	2.8	
N. Eastern Africa	20	24.0	0.1	2.9	4.2	4.8	24.0	24.7	25.7	28.2	3.3	
Eastern Africa	98	93.0	2.8	4.1	4.0	4.0	95.5	99.5	103.4	111.8	3.8	
Central/West. Africa	60	63.4	1.0	3.5	3.7	3.8	64.1	66.3	68.8	74.1	3.2	
Southern Africa	46	67.1	-0.1	2.5	6.3	6.4	67.0	68.7	73.0	82.7	4.3	
Indian sub-continent	59	279.3	8.2	6.7	7.0	7.1	302.4	322.7	345.4	396.4	7.2	
Southeast Asia	113	609.1	7.8	6.5	7.0	7.0	656.8	699.7	749.0	857.4	7.1	
Northeast Asia	81	1,372.8	9.0	7.2	7.4	8.1	1,496.0	1,603.7	1,722.6	2,011.6	7.9	
Southwest Pacific	42	269.5	5.7	7.1	6.8	7.2	284.8	305.1	326.0	374.9	6.8	

Source: Freight Traffic Forecast 1987-1991, IATA, Oct. 1987, P 23

Table 2.4.3 Percentage Composition of the Regions in the Total Overseas Imports and Exports of Nepal

	1982/83		1983/84		1984/85		1985/86		1986/87		
	Value (1000 Rs)	Share %	Value (1000 Rs)	Share %	Value (1000 Rs)	Share %	Value (1000 Rs)	Share %	Value (1000 Rs)	Share %	
Imported	Asia 1)	2638045	74.0	2080768	61.4	2413014	60.6	39622805	75.7	4561453	72.7
	Africa	1216	0.0	559	0.0	2032	0.1	1380	0.0	635	0.0
	America	141684	4.0	157986	4.7	201126	5.1	235395	4.5	110506	1.7
	EEC	258195	7.3	439778	13.0	722212	18.1	565691	10.8	1002316	16.0
	Europe 2)	466087	13.1	677952	20.0	590584	14.8	420793	8.0	431496	6.9
	Oceania	58180	1.6	28101	0.8	50507	1.3	49742	1.0	170591	2.7
Cargo	Others	679	0.0	2937	0.1	1887	0.0	1562	0.0	544	0.0
	Total	3564086	100.0	3388080	100.0	3981363	100.0	5237368	100.0	6277541	100.0
Exported	Asia 1)	26245	9.1	29200	6.0	138832	12.4	291418	16.6	185387	11.2
	Africa	6472	2.2	133	0.0	274	0.0	2	0.0	514	0.0
	America	19047	6.6	30871	6.4	488024	43.7	820137	46.6	621237	37.4
	EEC	191583	66.1	345505	71.4	359252	32.1	470310	26.7	593769	35.8
	Europe 2)	42722	14.7	75753	15.7	129920	11.6	176148	10.0	255148	15.4
	Oceania	3338	1.2	2147	0.5	2575	0.2	2517	0.1	3257	0.2
Cargo	Others	284	0.1	129	0.0	100	0.0	254	0.0	515	0.0
	Total	289692	100.0	483738	100.0	1118978	100.0	1760786	100.0	1659826	100.0

Note

1): excluding India

2): excluding EEC

Source: Nepal Overseas Trade Statics 1984-85, 1986-87

Table 2.5.1 Sectorwise Charter Cargo Upliftment

From Nepalgunj	1985/86	1986/87
- Kathmandu	1 771	2 067
- Chaurajhari	7 656	15 912
- Dolpa	162 932	137 141
- Simikot	122 512	129 412
- Jumla	350 912	365 867
- Sanfebagar	142 075	9 696
- Baitadi	414	651
- Darchula	366	1 312
- Mahendranagar	124	-
- Dhangadhi	58	293
- Doti	5 140	6 839
- Surkhet	19 476	23 933
- Bajhang	76 802	4 336
- Bajura	84 968	1 142
From Dhangadhi		
- Bajhang	17 631	20 347
- Bajura	5 840	40 969
- Sanfebagar	10 785	10 289
- Kathmandu	1 237	764
- Doti	1 337	2 006
From Mahendranagar		
- Sanfebagar		1 962
- Baitadi		2
- Darchula		250
- Bajhang		265
- Kathmandu		92
From Simikot		
- Nepalgunj		4 517
- Jumla		60
From Dolpa		
- Nepalgunj		52 605
- Bhairahawa		19
From Pokhara		
- Kathmandu	3 361	7 529
- Jomsom	90 168	82 960
- Baglung	838	1 649
From Biratnagar		
- Kathmandu	2 481	3 204
- Lamidada	4 755	4 008
- Tumlingtar	4 844	7 852
- Bhojpur	3 829	4 748
- Rumjatar	1 606	2 754
- Taplejung	1 109	1 306
Total	1 126	949

Source: RNAC



**Appendix to Section 5.7      Number of Passengers and Flights by Route**





Appendix to Section 5.7      Number of Passengers and Flights by Route

Table 5.7.1	Number of Passengers and Flights by Route (To/From Kathmandu) .....	5- 1
Table 5.7.2	Number of Passengers and Flights by Route (To/From Pokhara) .....	5- 2
Table 5.7.3	Number of Passengers and Flights by Route (To/From Nepalgunj) .....	5- 3
Table 5.7.4	Number of Passengers and Flights by Route (To/From Biratnagar) .....	5- 4
Table 5.7.5	Number of Passengers and Flights by Route (Other Routes) .....	5- 5



Table 5.7.1 NUMBER OF PASSENGERS AND FLIGHTS BY ROUTE  
(TO/FROM KATHMANDU)

YEAR 2010	FROM(TO)	TO(FROM)	KATHMANDU						
			PAX	ACFT	NO.OF FLT/WEEK				
					B2	HS	DH	PC	
1	KATHMANDU (TRIBHUVAN)	KTM	-	-	-	-	-	-	-
2	BHAIRAHAWA	BWA	53,100	HS	-	38	-	-	-
3	BIRATNAGAR	BIR	35,200	HS	-	26	-	-	-
4	NEPALGUNJ	KEP	48,600	HS	-	36	-	-	-
5	POKHARA	PKR	80,800	HS	-	60	-	-	-
6	BHARATPUR	BHR	-	-	-	-	-	-	-
7	DHANGADHI	DHI	-	-	-	-	-	-	-
8	JANAKPUR	JKR	1,700	DH	-	-	2	-	-
9	RAJBIRAJ	RJB	-	-	-	-	-	-	-
10	SIMRA	SIF	16,100	HS	-	12	-	-	-
11	SURKHET	SKH	-	-	-	-	-	-	-
12	TUMLINGTAR	TMI	11,300	DH	-	-	20	-	-
13	BAITADI (PATAN)	BIT	-	-	-	-	-	-	-
14	BAGLUNG (BALEWA)	BGL	2,400	DH	-	-	4	-	-
15	BAJHANG	BJH	-	-	-	-	-	-	-
16	BAJURA	BJU	-	-	-	-	-	-	-
17	BHOJPUR	BHP	5,500	DH	-	-	10	-	-
18	CHANDRAGADI	BDP	-	-	-	-	-	-	-
19	DANG (TULSIPUR)	DNP	-	-	-	-	-	-	-
20	DARCHULA	DAP	-	-	-	-	-	-	-
21	DHORPATAN	-	-	-	-	-	-	-	-
22	DOLPA	DOP	-	-	-	-	-	-	-
23	DOTI (DIPAYAL)	SIH	-	-	-	-	-	-	-
24	GORKHA (PALUNGTAR)	-	-	-	-	-	-	-	-
25	JIRI	JIR	-	-	-	-	-	-	-
26	JOMSON	JMO	2,300	DH	-	-	4	-	-
27	JUMLA	JUM	4,600	DH	-	-	8	-	-
28	LAMIDADA	LDN	5,600	DH	-	-	10	-	-
29	LANGTANG	-	-	-	-	-	-	-	-
30	LUKLA	LUA	33,600	DH	-	-	62	-	-
31	MAHENDRANAGAR	XMG	-	-	-	-	-	-	-
32	MANANG	MGX	-	-	-	-	-	-	-
33	MEGHAULI	MEY	26,100	HS	-	18	-	-	-
34	PHAPLU	PPL	1,700	DH	-	-	2	-	-
35	RAMECHHAP	RHP	2,700	DH	-	-	4	-	-
36	ROLPA	RPA	-	-	-	-	-	-	-
37	RUKUMKOT (CHAURAJHARI)	HRJ	-	-	-	-	-	-	-
38	RUMJATAR	RUM	6,500	DH	-	-	12	-	-
39	SANFEBAGAR	FEB	-	-	-	-	-	-	-
40	SIMIKOT (HUMLA)	IMK	-	-	-	-	-	-	-
41	SYANGBOCHE	-	11,600	DH	-	-	20	-	-
42	TAPLEJUNG	TPJ	1,200	DH	-	-	2	-	-
43	TIKAPUR	TKP	-	-	-	-	-	-	-
44	MUGU	-	4,500	DH	-	-	8	-	-
45	(MOUNTAIN)	-	88,800	B2	24	-	-	-	-
TOTAL			443,900		24	190	168	0	

SEAT CAPACITY

B2 (B727 class) : 130      HS (HS748 class) : 50  
 DH (DHC6 class) : 20      PC (PC6 class) : 5

Table 5.7.2 NUMBER OF PASSENGERS AND FLIGHTS BY ROUTE  
(TO/FROM POKHARA)

YEAR 2010	FROM(TO)	TO(FROM)	POKHARA					
			PAX	ACFT	NO. OF FLT/WEEK			
					B2	HS	DH	PC
1	KATHMANDU (TRIBHUVAN)	KTM	80,800	HS	-	60	-	-
2	BHAIRAHAWA	BWA						
3	BIRATNAGAR	BIR						
4	NEPALGUNJ	KEP						
5	POKHARA	PKR						
6	BHARATPUR	BHR						
7	DHANGADHI	DHI						
8	JANAKPUR	JKR						
9	RAJBIRAJ	RJB						
10	SIMRA	SIF						
11	SURKHET	SKH						
12	TUMLINGTAR	TMI						
13	BAITADI (PATAN)	BIT						
14	BAGLUNG (BALEWA)	BGL	10,000	DH	-	-	18	-
15	BAJHANG	BJH						
16	BAJURA	BJU						
17	BHOJPUR	BHP						
18	CHANDRAGADI	BDP						
19	DANG (TULSIPUR)	DNP						
20	DARCHULA	DAP						
21	DHORPATAN							
22	DOLPA	DOP						
23	DOTI (DIPAYAL)	SIH						
24	GORKHA (PALUNGTAR)							
25	JIRI	JIR						
26	JOMSON	JMO	15,600	DH	-	-	28	-
27	JUMLA	JUM						
28	LAMIDADA	LDN						
29	LANGTANG							
30	LUKLA	LUA						
31	MAHENDRANAGAR	XMG						
32	MANANG	MGX	1,200	DH	-	-	2	-
33	MEGHAULI	MEY						
34	PHAPLU	PPL						
35	RAMECHHAP	RHP						
36	ROLPA	RPA						
37	RUKUMKOT (CHAURAJHARI)	HRJ						
38	RUMJATAR	RUM						
39	SANFEBAGAR	FEB						
40	SIMIKOT (HUMLA)	IMK						
41	SYANGBOCHE							
42	TAPLEJUNG	TPJ						
43	TIKAPUR	TKP						
44	MUGU							
45	(MOUNTAIN)							
TOTAL			107,600		0	60	48	0

SEAT CAPACITY

B2 (B727 class) : 130      HS (HS748 class) : 50  
 DH (DHC6 class) : 20      PC (PC6 class) : 5

Table 5.7.3 NUMBER OF PASSENGERS AND FLIGHTS BY ROUTE  
(TO/FROM NEPALGUNJ)

YEAR 2010		TO(FROM) NEPALGUNJ					
FROM(TO)		PAX	ACFT	NO.OF FLT/WEEK			
				B2	HS	DH	PC
1	KATHMANDU (TRIBHUVAN)	KTM	49,300	HS	-	36	-
2	BHAIRAHAWA	BWA	1,100	DH	-	-	2
3	BIRATNAGAR	BIR	-	-	-	-	-
4	NEPALGUNJ	KEP	-	-	-	-	-
5	POKHARA	PKR	-	-	-	-	-
6	BHARATPUR	BHR	-	-	-	-	-
7	DHANGADHI	DHI	6,200	DH	-	-	10
8	JANAKPUR	JKR	-	-	-	-	-
9	RAJBIRAJ	RJB	-	-	-	-	-
10	SIMRA	SIF	-	-	-	-	-
11	SURKHET	SKH	21,900	HS	-	16	-
12	TUMLINGTAR	TMI	-	-	-	-	-
13	BAITADI (PATAN)	BIT	5,400	DH	-	-	10
14	BAGLUNG (BALEWA)	BGL	-	-	-	-	-
15	BAJHANG	BJH	6,300	DH	-	-	10
16	BAJURA	BJU	9,700	DH	-	-	18
17	BHOJPUR	BHP	-	-	-	-	-
18	CHANDRAGADI	BDP	-	-	-	-	-
19	DANG (TULSIPUR)	DNP	200	PC	-	-	-
20	DARCHULA	DAP	1,600	DH	-	-	2
21	DHORPATAN	-	-	-	-	-	-
22	DOLPA	DOP	5,900	DH	-	-	10
23	DOTI (DIPAYAL)	SIH	8,600	DH	-	-	16
24	GORKHA (PALUNGTAR)	-	-	-	-	-	-
25	JIRI	JIR	-	-	-	-	-
26	JOMSON	JMO	-	-	-	-	-
27	JUMLA	JUM	13,800	DH	-	-	24
28	LAMIDADA	LDN	-	-	-	-	-
29	LANGTANG	-	-	-	-	-	-
30	LUKLA	LUA	-	-	-	-	-
31	MAHENDRANAGAR	XMG	1,700	DH	-	-	2
32	MANANG	MGX	-	-	-	-	-
33	MEGHAULI	MEY	-	-	-	-	-
34	PHAPLU	PPL	-	-	-	-	-
35	RAMECHHAP	RHP	-	-	-	-	-
36	ROLPA	RPA	-	-	-	-	-
37	RUKUMKOT(CHAURAJHARI)	HRJ	22,700	DH	-	-	42
38	RUMJATAR	RUM	-	-	-	-	-
39	SANFEBAGAR	FEB	20,100	DH	-	-	36
40	SIMIKOT (HUMLA)	IMK	6,400	DH	-	-	10
41	SYANGBOCHE	-	-	-	-	-	-
42	TAPLEJUNG	TPJ	-	-	-	-	-
43	TIKAPUR	TKP	400	PC	-	-	-
44	MUGU	-	-	-	-	-	-
45	(MOUNTAIN)	-	-	-	-	-	-
TOTAL			181,300		0	52	192

SEAT CAPACITY

B2 (B727 class) : 130      HS (HS748 class) : 50  
 DH (DHC6 class) : 20      PC (PC6 class) : 5

Table 5.7.4

NUMBER OF PASSENGERS AND FLIGHTS BY ROUTE  
(TO/FROM BIRATNAGAR)

YEAR 2010	FROM(TO)	TO(FROM) BIRATNAGAR	PAX	ACFT	NO. OF FLT/WEEK			
					B2	HS	DH	PC
1	KATHMANDU (TRIBHUVAN)	KTM	35,400	HS	-	26	-	-
2	BHAIRAHAWA	BWA						
3	BIRATNAGAR	BIR						
4	NEPALGUNJ	KEP						
5	POKHARA	PKR						
6	BHARATPUR	BHR						
7	DHANGADHI	DHI						
8	JANAKPUR	JKR						
9	RAJBIRAJ	RJB						
10	SIMRA	SIF						
11	SURKHET	SKH						
12	TUMLINGTAR	TMI	17,000	DH	-	-	30	-
13	BAITADI (PATAN)	BIT						
14	BAGLUNG (BALEWA)	BGL						
15	BAJHANG	BJH						
16	BAJURA	BJU						
17	BHOJPUR	BHP	13,700	DH	-	-	24	-
18	CHANDRAGADI	BDP						
19	DANG (TULSIPUR)	DNP						
20	DARCHULA	DAP						
21	DHORPATAN							
22	DOLPA	DOP						
23	DOTI (DIPAYAL)	SIH						
24	GORKHA (PALUNGTAR)							
25	JIRI	JIR						
26	JOMSON	JMO						
27	JUMLA	JUM						
28	LAMIDADA	LDN	19,300	DH	-	-	36	-
29	LANGTANG							
30	LUKLA	LUA						
31	MAHENDRANAGAR	XMG						
32	MANANG	MGX						
33	MEGHAULI	MEY						
34	PHAPLU	PPL						
35	RAMECHHAP	RHP						
36	ROLPA	RPA						
37	RUKUMKOT (CHAURAJHARI)	HRJ						
38	RUMJATAR	RUM	5,500	DH	-	-	10	-
39	SANFEBAGAR	FEB						
40	SIMIKOT (HUMLA)	IMK						
41	SYANGBOCHE							
42	TAPLEJUNG	TPJ	4,900	DH	-	-	8	-
43	TIKAPUR	TKP						
44	MUGU							
45	(MOUNTAIN)							
TOTAL			95,800		0	26	108	0

## SEAT CAPACITY

B2 (B727 class) : 130

HS (HS748 class) : 50

DH (DHC6 class) : 20

PC (PC6 class) : 5

Table 5.7.5 NUMBER OF PASSENGERS AND FLIGHTS BY ROUTE  
(OTHER ROUTES)

OD	PAX	ACFT	NO. OF FLT/WEEK			
			B2	HS	DH	PC
RUMJATAR JANAKPUR	1,600	DH	-	-	2	-
JANAKPUR RAMECHAP	0					
BHAIRAHWA BAGLUNG	600	DH	-	-	2	-
BHAIRAHWA RUKUMKOT	1,400	DH	-	-	2	-
BHAIRAHWA DOLPA	2,100	DH	-	-	2	-
BHAIRAHWA ROLPA	0					
RUKUMKOT DANG	2,100	DH	-	-	2	-
JUMLA SIMIKOT	0					
JUMLA SURKHET	1,000	DH	-	-	2	-
TIKAPUR DHANGADHI	0					
TIKAPUR SANFEBAGAR	1,400	DH	-	-	2	-
DHANGADHI BAJURA	6,800	DH	-	-	12	-
DHANGADHI SANFEBAGAR	6,300	DH	-	-	10	-
DHANGADHI BAJHANG	3,700	DH	-	-	6	-
DHANGADHI DOTI	4,700	DH	-	-	8	-
DHANGADHI MAHENDRANA	0					
DOTI MAHENDRANA	1,400	DH	-	-	2	-
SANFEBAGARMAHENDRANA	7,200	DH	-	-	12	-
BAJHANG MAHENDRANA	3,400	DH	-	-	6	-
MAHENDRANABAITADI	7,200	DH	-	-	12	-
MAHENDRANADARCHULA	2,700	DH	-	-	4	-
<b>TOTAL</b>	<b>53,600</b>				<b>86</b>	





**Appendix to Section 9.3.2 Calculation of Runway Capacity for TIA**



**Appendix to Section 9.3.2 Calculation of Runway Capacity for TIA**

Condition of the Calculations .....	9- 1
Case-1 Particular flight separation is required and taxiway utilization is same as present .....	9- 2
Case-2 Particular flight separation is required and whole of the existing parallel taxiway is available to all aircraft .....	9- 6
Case-3 Particular flight separation is required and entrance taxiway for Runway 20 threshold is available .....	9- 9
Case-4 No particular separation is required and taxiway utilization is same as present .....	9-12



## Appendix to Section 9.3.2 Calculation of Runway Capacity for TIA

Conditions of the calculations are as follows.

### 1) Runway Usage Proportion by Aircraft Types

Large and Medium Jet (DC-10, B-767, B-757, B-727): 53%  
HS-748 : 24%  
DHC-6 : 23%

Large Jet : Medium Jet = 23% : 77%  
(DC-10, B-767) (B-757, B-727)

The above proportions are based on the forecast annual aircraft movements in the year 2000.

### 2) Aircraft Speed

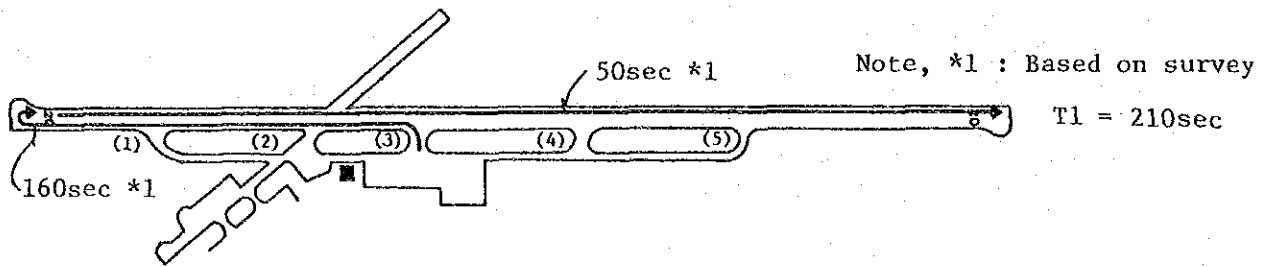
	Landing	Take-off	Climb over VOR/DME	Climb in TMA
Jet	150 Kt	170 Kt	210 Kt	250 Kt
HS-748	120 Kt	150 Kt	175 Kt	200 Kt
DHC-6	70 Kt	85 Kt	93 Kt	101 Kt

Case-1 Particular flight separation is required and taxiway utilization is same as present

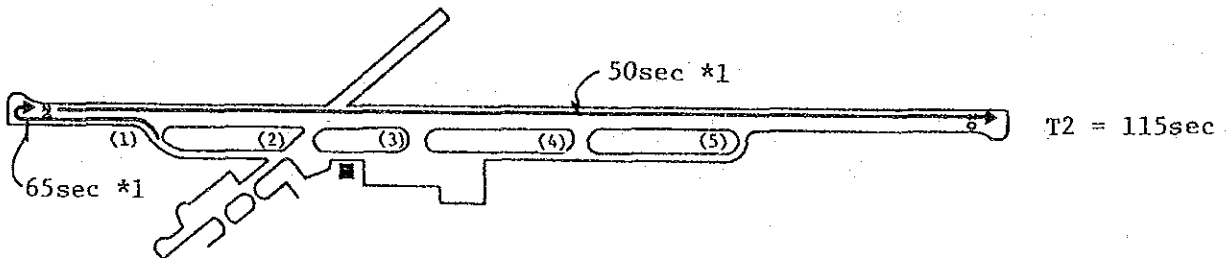
1) Runway Occupancy Time

a. Take-off followed by Take-off

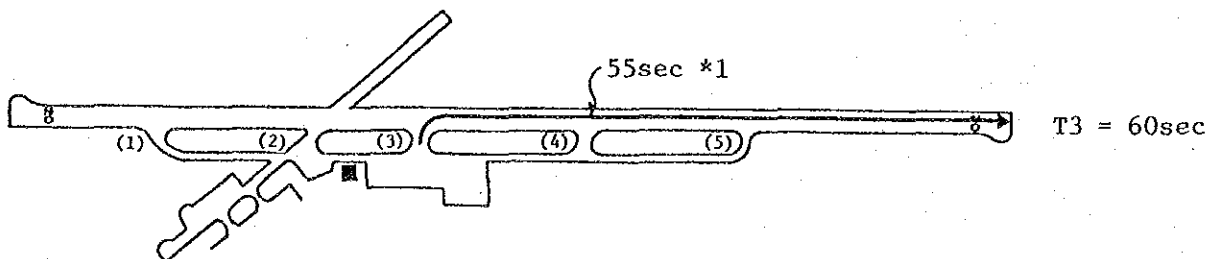
Large and Medium Jet



HS 748

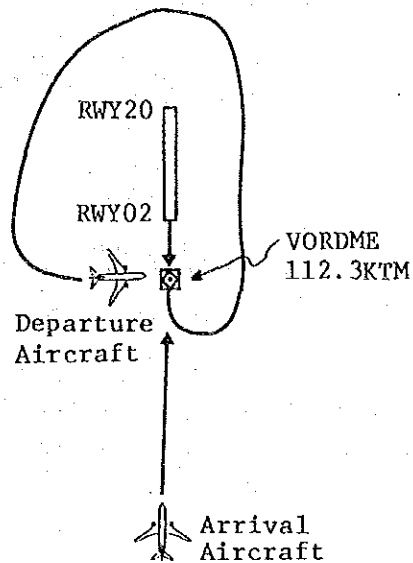


DHC-6



Although an actual runway occupancy time is 55 seconds, minimum flight separation of 60 seconds is required under visual meteorological condition (VMC).

b. Take-off followed by Landing



After departure aircraft passes over VOR/DME 112.3 KTM after circling, the following arrival aircraft is able to get approval of landing from control tower.

Distance from Runway threshold 02 to VOR/DME is 22 NM.

Large and Medium Jet

Take-off  $t_1 = T_1 = 210 \text{ sec}$

Circling  $t_2 = 22 \text{ NM} / 190 \text{ Kt} = 417 \text{ sec}$   
 $T_4 = t_1 + t_2 = 627 \text{ sec}$

HS748

Take-off  $t_3 = T_2 = 115 \text{ sec}$

Circling  $t_4 = 22 \text{ NM} / 160 \text{ Kt} = 495 \text{ sec}$   
 $T_5 = t_3 + t_4 = 610 \text{ sec}$

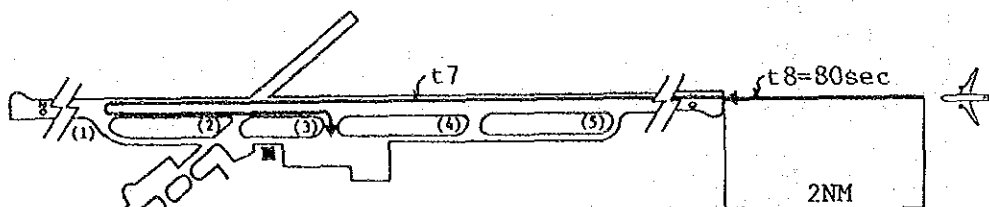
DHC-6

Take-off  $t_5 = T_3 = 55 \text{ sec (Refer to a.)}$   
 $t_6 = 22 \text{ NM} / 90 \text{ Kt} = 880 \text{ sec}$   
 $T_6 = t_5 + t_6 = 935 \text{ sec}$

c. Landing followed by Take-off

Arrival aircraft is required to get approval of landing before the aircraft reaches 2 NM from runway threshold.

Large and Medium Jet



$$t_8 = 2\text{NM}/150\text{kt} + 30\text{sec}^{*2} = 78\text{sec} \approx 80\text{sec}$$

Note, \*2: Time for communication

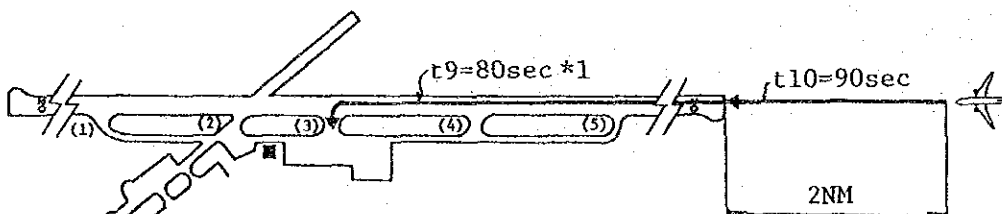
		*1
$t_7$	Large Jet	230 sec x 0.23
		*1
	Medium Jet	125 sec x 0.77

Ave. 149 sec

Note, \*1: Based on survey

$$T_7 = t_7 + t_8 = 229 \text{ sec}$$

HS-748

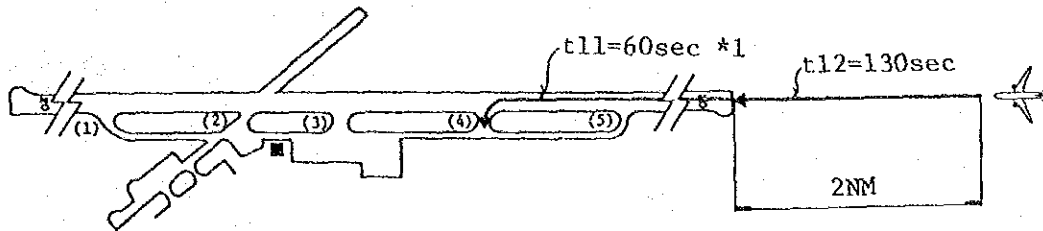


$$t_{10} = 2\text{NM}/120\text{kt} + 30\text{sec} = 90\text{sec}$$

$$T_8 = t_9 + t_{10} = 170 \text{ sec}$$



DHC-6



$$t_{12} = 2\text{NM} / 70\text{kt} + 30\text{sec} = 133\text{sec} \approx 130\text{sec}$$

d. Landing followed by Landing  
Same as c.

2) Average Runway Occupancy Time

Unit: Second

Type of Aircraft	Large and Medium Jet	HS-748	DHC-6	Average
Runway Usage Propotion	53%	24%	23%	
a. Take-off followed by Take-off	210	115	60	153
b. Take-off followed by Landing	627	610	935	694
c. Landing followed by Take-off	229	170	190	206
d. Landing followed by Landing	229	170	190	206
			Average	315

3) Runway Capacity

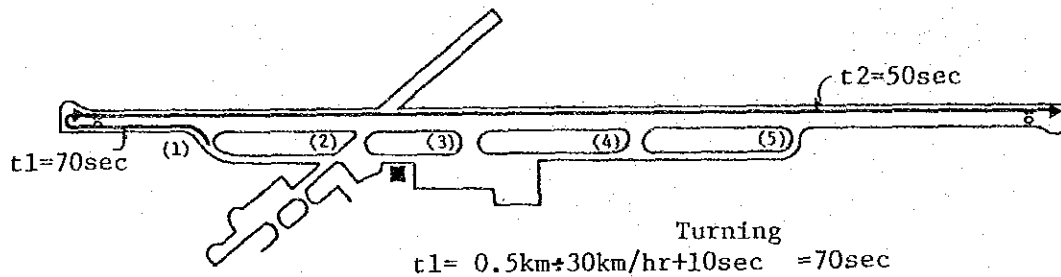
$$C = 3600 \text{ sec} / 315 \text{ sec} = 11.4 \div 11 \text{ operations}$$

Case-2 Particular flight separation is required and whole of the existing parallel taxiway is available to all aircraft

1) Runway Occupancy Time

a. Take-off followed by Take-off

Large and Medium Jet



$$T_1 = t_1 + t_2 = 120 \text{ sec}$$

HS-748	Same as Case-1	$T_2 = 115 \text{ sec}$
DHC-6	Same as Case-1	$T_3 = 60 \text{ sec}$

b. Take-off followed by Landing

Large and Medium Jet

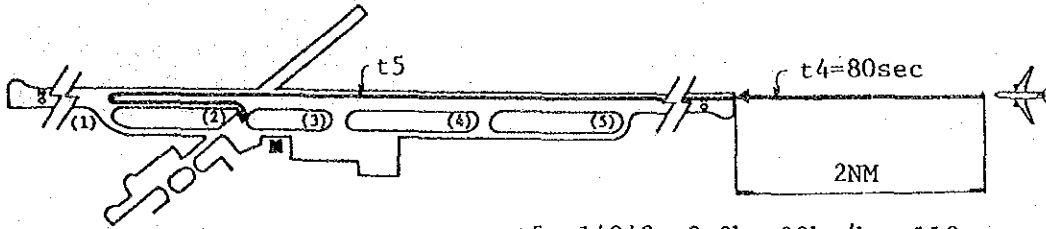
Take-off  $t_2 = T_1 = 120 \text{ sec}$

Circling Same as Case-1  $t_3 = 417 \text{ sec}$   
 $T_4 = t_2 + t_3 = 537 \text{ sec}$

HS-748	Same as Case-1	$T_5 = 610 \text{ sec}$
DHC-6	Same as Case-1	$T_6 = 935 \text{ sec}$

c. Landing followed by Take-off

Large and Medium Jet



$$t_5 = 149 * 2 - 0.3 \text{ km} \div 30 \text{ km/hr} = 113 \text{ sec}$$

Note, \*2: t7 in Case-1

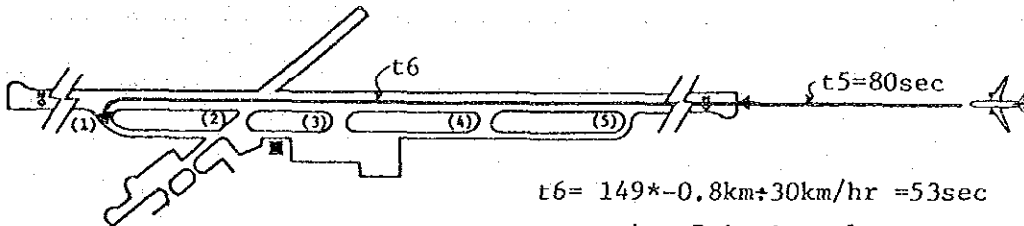
$$T_7 = t_4 + t_5 = 193 \text{ sec}$$

HS-748 Same as Case-1  $T_8 = 170 \text{ sec}$

DHC-6 Same as Case-1  $T_9 = 190 \text{ sec}$

d. Landing followed by Landing

Large and Medium Jet



$$t_6 = 149 * -0.8 \text{ km} \div 30 \text{ km/hr} = 53 \text{ sec}$$

Note, \*: t7 in Case-1

$$T_{10} = 133 \text{ sec}$$

HS-748 Same as Case-1  $T_{11} = 170 \text{ sec}$

DHC-6 Same as Case-1  $T_{12} = 190 \text{ sec}$

2) Average Runway Occupancy Time

Unit: Second

Type of Aircraft	Large and Medium Jet	HS-748	DHC-6	Average
Runway Usage Propotion	53%	24%	23%	
a. Take-off followed by Take-off	120	115	60	105
b. Take-off followed by Landing	537	610	935	646
c. Landing followed by Take-off	193	170	190	187
d. Landing followed by Landing	133	170	190	155
			Average	273

3) Runway Capacity

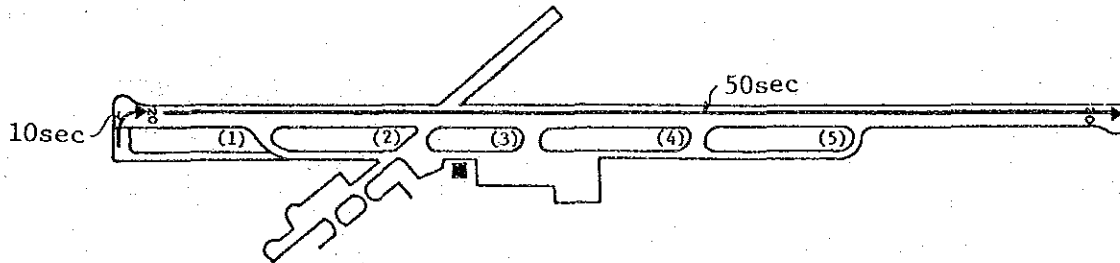
$$C = 3600 \text{ sec} / 273 \text{ sec} = 13.2 \approx 13 \text{ operations}$$

Case-3 Particular flight separation is required and entrance taxiway for Runway 20 threshold is available

1) Runway Occupancy Time

a. Take-off followed by Take-off

Large and Medium Jet



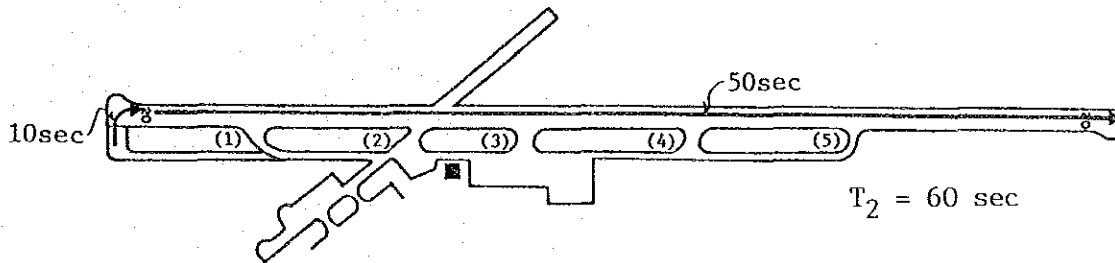
Although actual runway occupancy time is 60 seconds, large jet requires flight separation of 120 seconds taking wake turbulence into account.

Large Jet      120 sec x 0.23

Medium Jet      60 sec x 0.77      Ave. 74 sec

$$T_1 = 74 \text{ sec}$$

HS 748



$$T_2 = 60 \text{ sec}$$

DHC-6      Same as Case-1

$$T_3 = 60 \text{ sec}$$

b. Take-off followed by Landing

Large and Medium Jet

Take-off  $t_1 = 60$  sec (Refer to a. in Case-3)

Circling  $t_2 = 417$  sec

$$T_4 = t_1 + t_2 = 477 \text{ sec}$$

HS-748

Take-off  $t_3 = 60$  sec (Refer to a. in Case-3)

Circling  $t_4 = 495$  sec

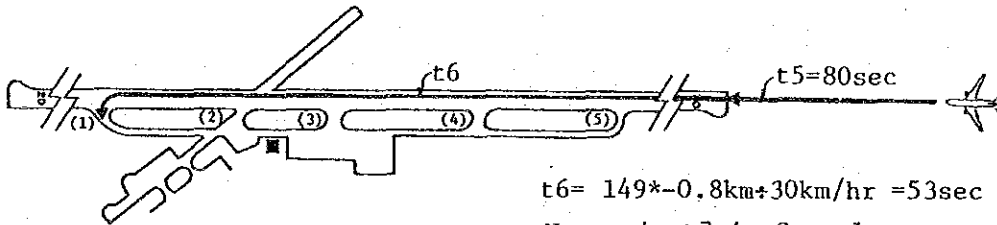
$$T_5 = t_3 + t_4 = 555 \text{ sec}$$

DHC-6 Same as Case-1

$$T_6 = 935 \text{ sec}$$

c. Landing followed by Take-off

Large and Medium Jet



$$t_6 = 149 * -0.8 \text{ km} + 30 \text{ km/hr} = 53 \text{ sec}$$

Note, \*:  $t_7$  in Case-1

$$T_7 = 33 \text{ sec}$$

HS-748 Same as Case-1

$$T_8 = 170 \text{ sec}$$

DHC-6 Same as Case-1

$$T_9 = 190 \text{ sec}$$

d. Landing followed by Landing

Same as c.

2) Average Runway Occupancy Time

Unit: Second

Type of Aircraft	Large and Medium Jet	HS-748	DHC-6	Average
Runway Usage Propotion	53%	24%	23%	
a. Take-off followed by Take-off	74	60	60	67
b. Take-off followed by Landing	477	555	935	601
c. Landing followed by Take-off	133	170	190	155
d. Landing followed by Landing	133	170	190	155
			Average	244

3) Runway Capacity

$$C = 3600 \text{ sec} / 244 \text{ sec} = 14.7 \div 15 \text{ operations}$$

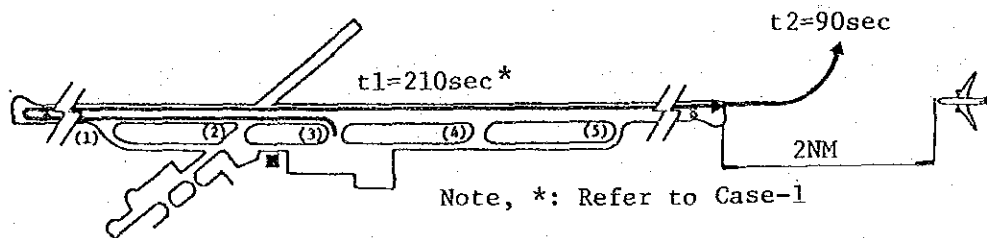
Case-4 No particular separation is required and taxiway utilization is same as present

1) Runway Occupancy Time

The runway occupancy times of take-off followed by take-off, landing followed by take-off and landing followed by landing are same as Case-1.

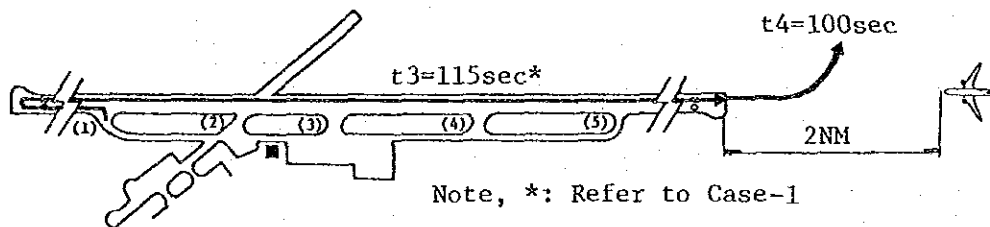
Take-off followed by Landing

Large and Medium Jet



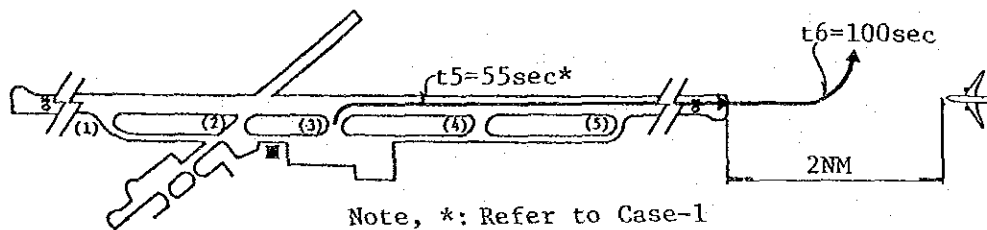
$$T_1 = t_1 + t_2 = 300 \text{ sec}$$

HS 748



$$T_2 = t_3 + t_4 = 215 \text{ sec}$$

DHC-6



$$T_3 = t_5 + t_6 = 155 \text{ sec}$$



2) Average Runway Occupancy Time

a. Take-off followed by Take-off	153 sec
b. Take-off followed by Landing	
$300 \text{ sec} \times 0.53 + 215 \text{ sec} \times 0.24 + 155 \text{ sec} \times 0.23 =$	246 sec
c. Landing followed by Take-off	206 sec
d. Landing followed by Landing	206 sec
	Average 203 sec

3) Runway Capacity

$$C = 3600 \text{ sec} / 203 \text{ sec} = 17.8 \approx 18 \text{ operations}$$

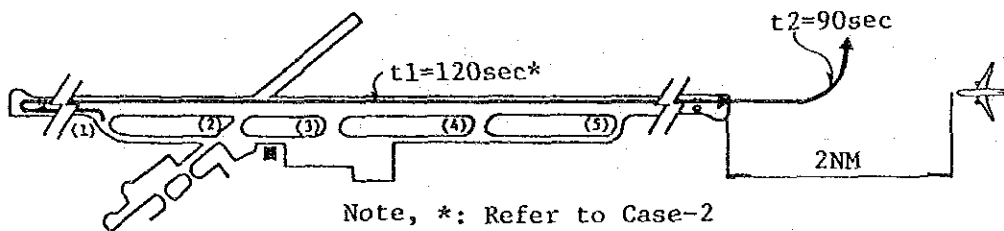
Case-5. No particular separation is required and while of the existing parallel taxiway is available to all aircraft

1) Runway Occupancy Time

The runway occupancy times of take-off followed by take-off, landing followed by take-off and landing followed by landing are same as Case-2.

Take-off followed Landing

Large and Medium Jet



Note, \*: Refer to Case-2

$$T_1 = t_1 + t_2 = 210 \text{ sec}$$

HS 748 Same as Case-4

$$T_2 = 215 \text{ sec}$$

DHC-6 Same as Case-4

$$T_3 = 155 \text{ sec}$$

2) Average Runway Occupancy Time

- a. Take-off followed by Take-off 105 sec
  - b. Take-off followed by Landing  
 $210 \text{ sec} \times 0.53 + 215 \text{ sec} \times 0.24 + 155 \text{ sec} \times 0.23 = 199 \text{ sec}$
  - c. Landing followed by Take-off 187 sec
  - d. Landing followed by Landing 155 sec
- Average 165 sec

3) Runway Capacity

$$C = 3600 \text{ sec} / 165 \text{ sec} = 21.8 \approx 22 \text{ operations}$$

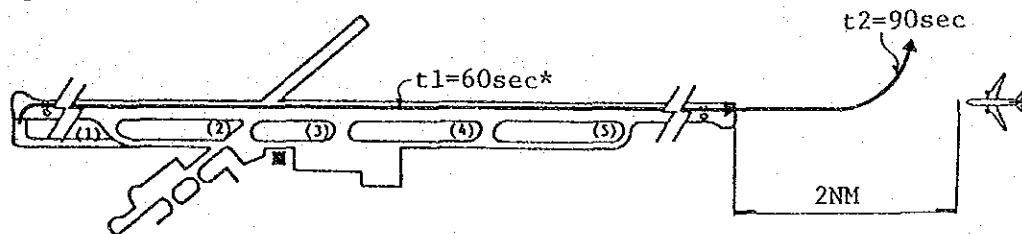
Case-6 No particular separation is required and entrance taxiway for runway 20 threshold is available

1) Runway Occupancy Time

The runway occupancy times of take-off followed by take-off, landing followed by take-off and landing followed by landing are same as Case-3.

Take-off followed Landing

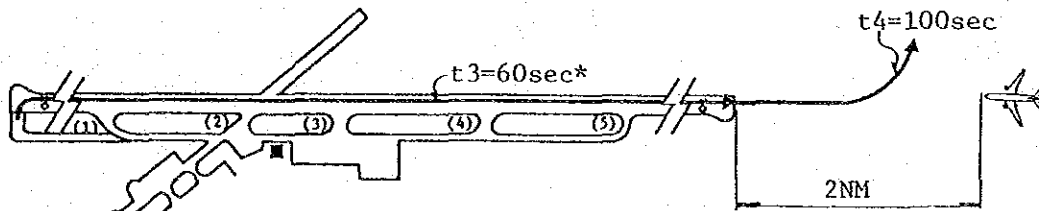
Large and Medium Jet



Note, \*: Refer to a in Case-3

$$T_1 = t_1 + t_2 = 150 \text{ sec}$$

HS 748



Note, \*: Refer to a in Case-3

$$T_2 = t_3 + t_4 = 160 \text{ sec}$$

DHC-6 Same as Case-4

$$T_3 = 155 \text{ sec}$$

2) Average Runway Occupancy Time

a. Take-off followed by Take-off	67 sec
b. Take-off followed by Landing	
$150 \text{ sec} \times 0.53 + 160 \text{ sec} \times 0.24 + 155 \text{ sec} \times 0.23 =$	154 sec
c. Landing followed by Take-off	155 sec
d. Landing followed by Landing	155 sec
	Average 133 sec

3) Runway Capacity

$$C = 3600 \text{ sec} / 133 \text{ sec} = 27.1 \div 27 \text{ operations}$$

**Appendix to Section 9.3.3 Demand/Capacity Analysis of International  
Terminal Building of TIA**



**Appendix to Section 9.3.3 Demand/Capacity Analysis of International Terminal Building**

Figs.1 to 11 show the capacity and requirement of each facility in the newly built international terminal building at TIA. From these figures, Serviceable period can be obtained, which is expressed as a period until facility requirement will reach the capacity.





Fig. 9.3.1 Departure Lobby

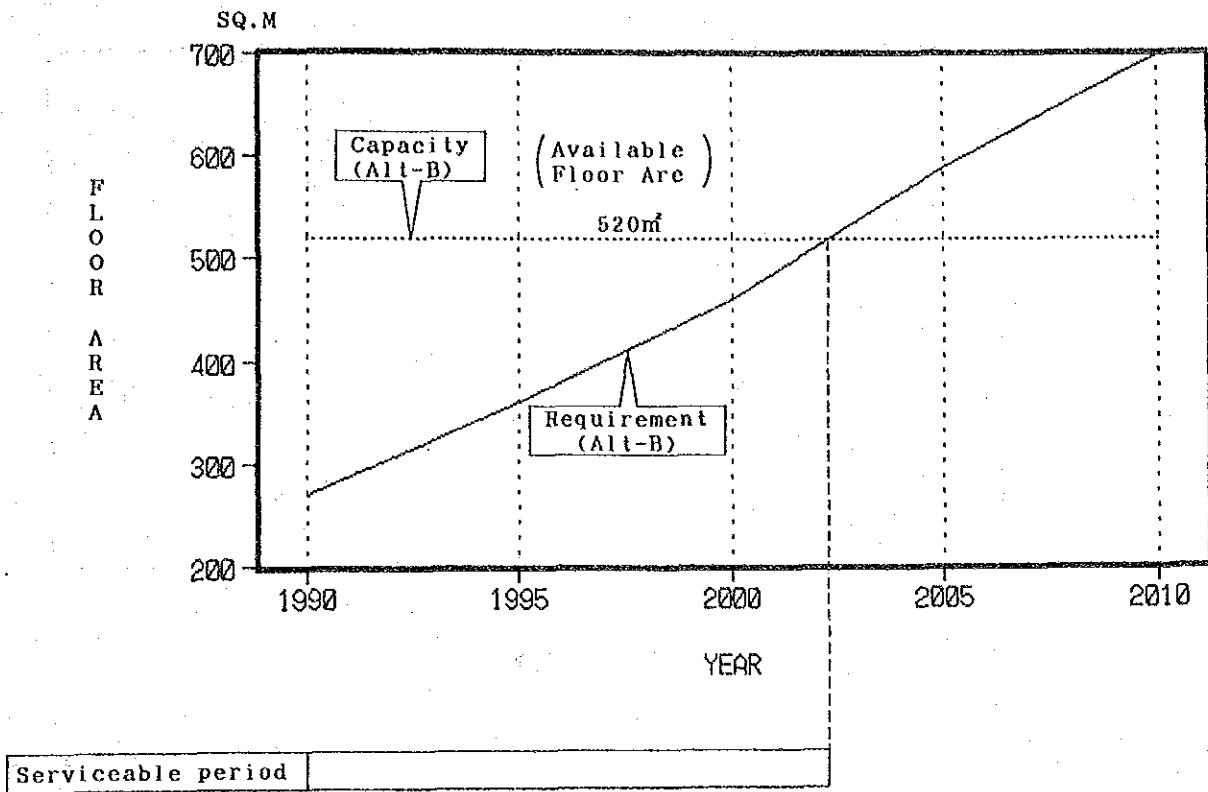


Fig. 9.3.2 Check - in Counter

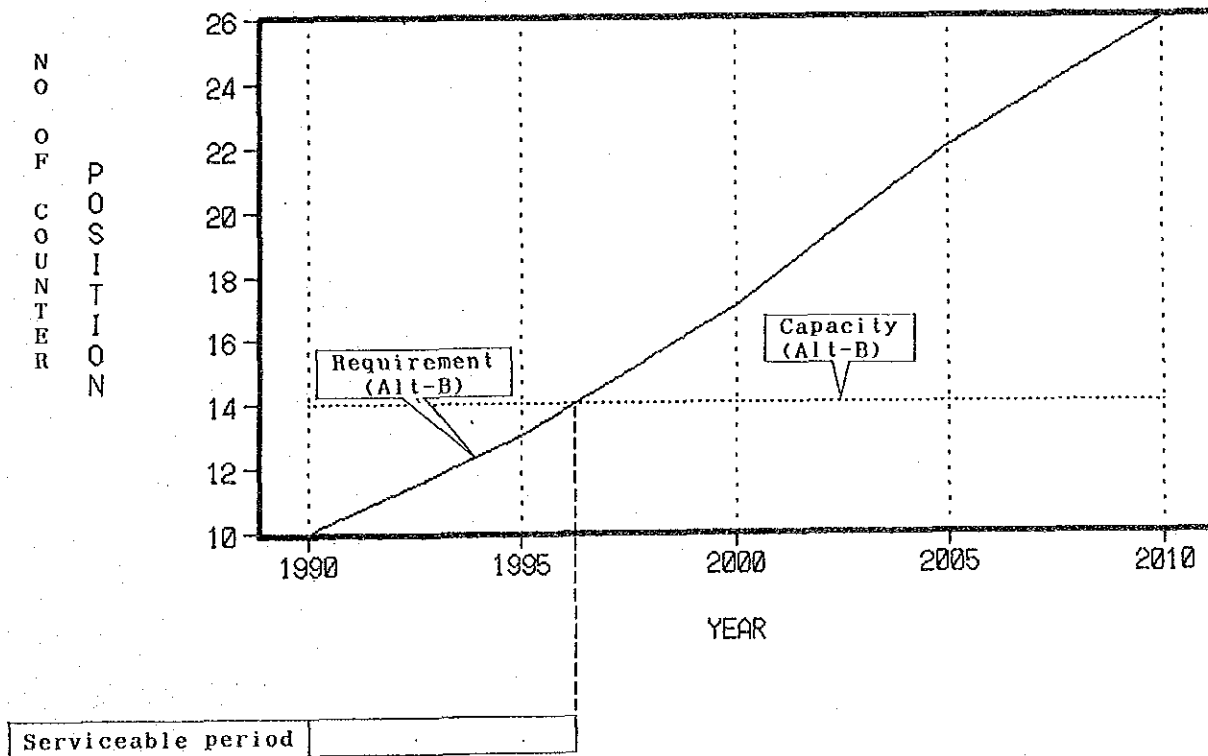
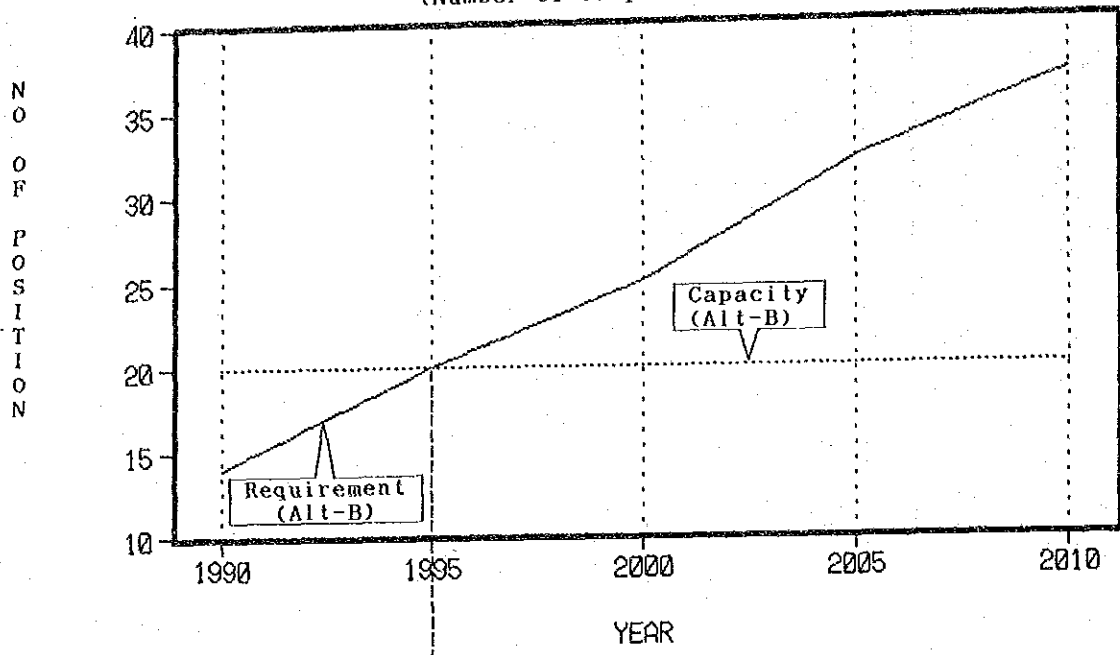


Fig. 9.3.3 Custom Baggage Inspection (Dep)  
 (Number of Inspection Position)



Serviceable period	
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Fig. 9.3.4 Outbound Baggage System

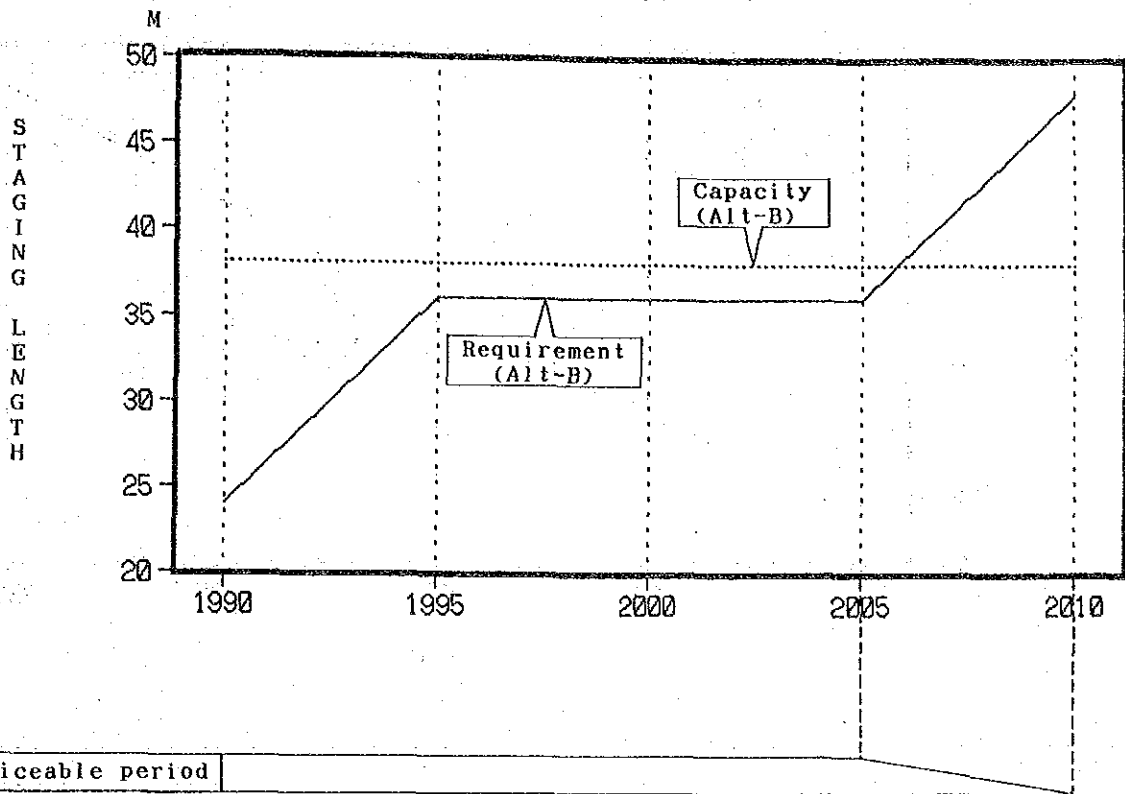


Fig. 9.3.5 Immigration Inspection (Dep)  
(Number of Inspection Position)

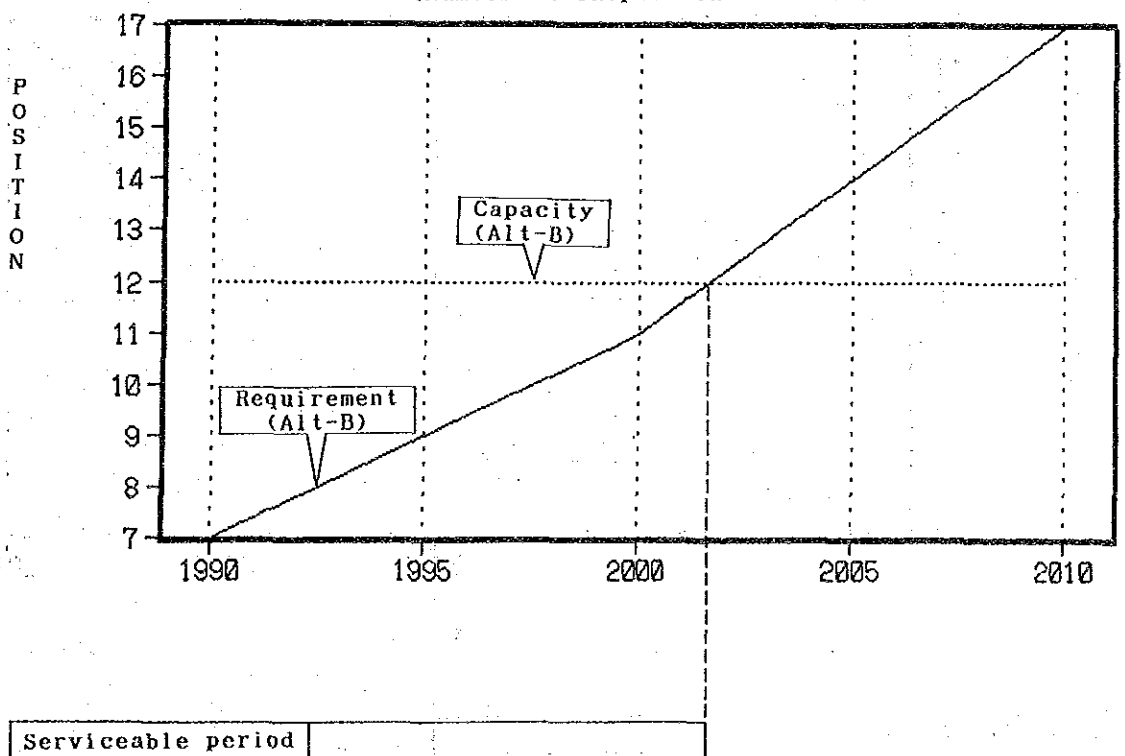


Fig. 9.3.6 Departure Lounge

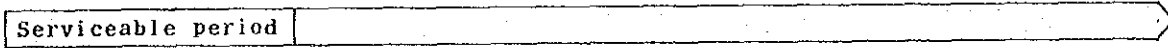
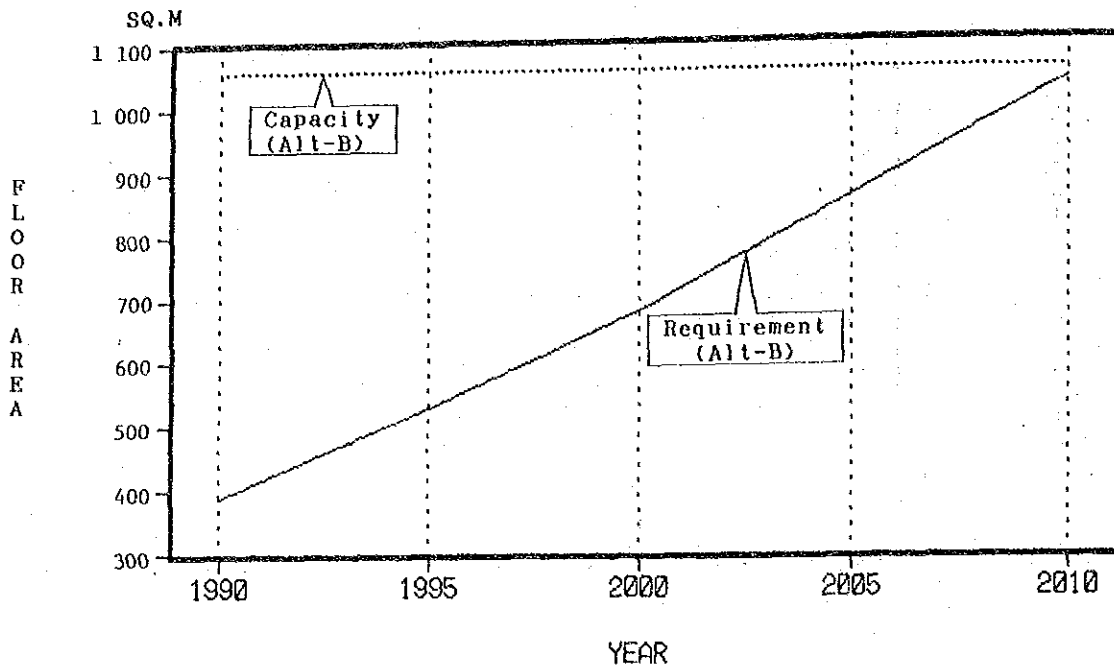


Fig. 9.3.7 Immigration Inspection (Arr.)  
(Number of Inspection Position)

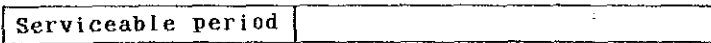
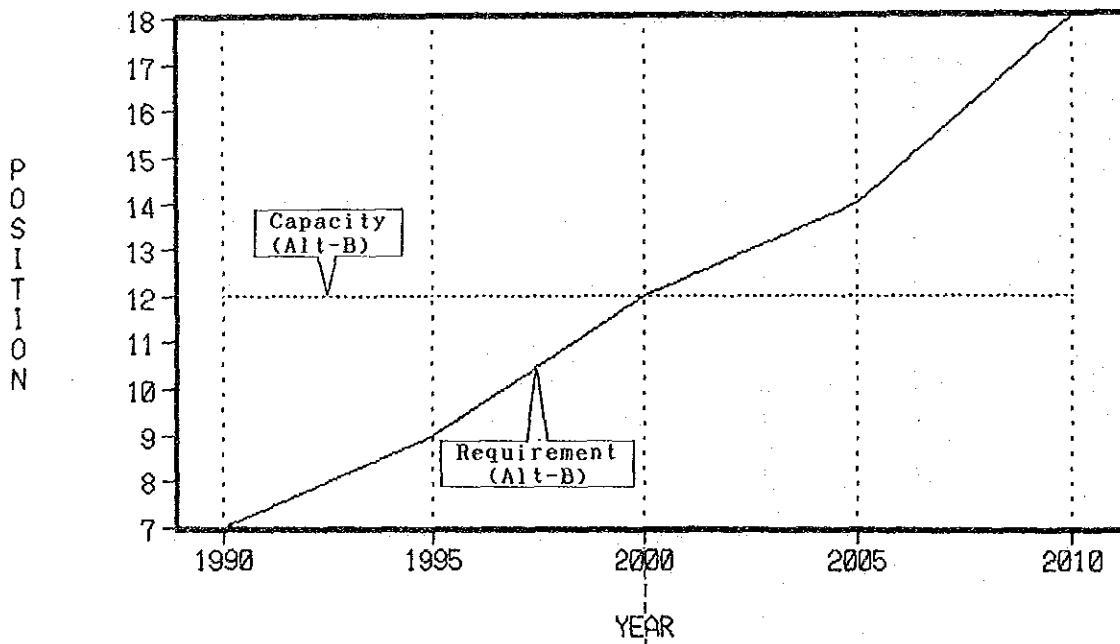
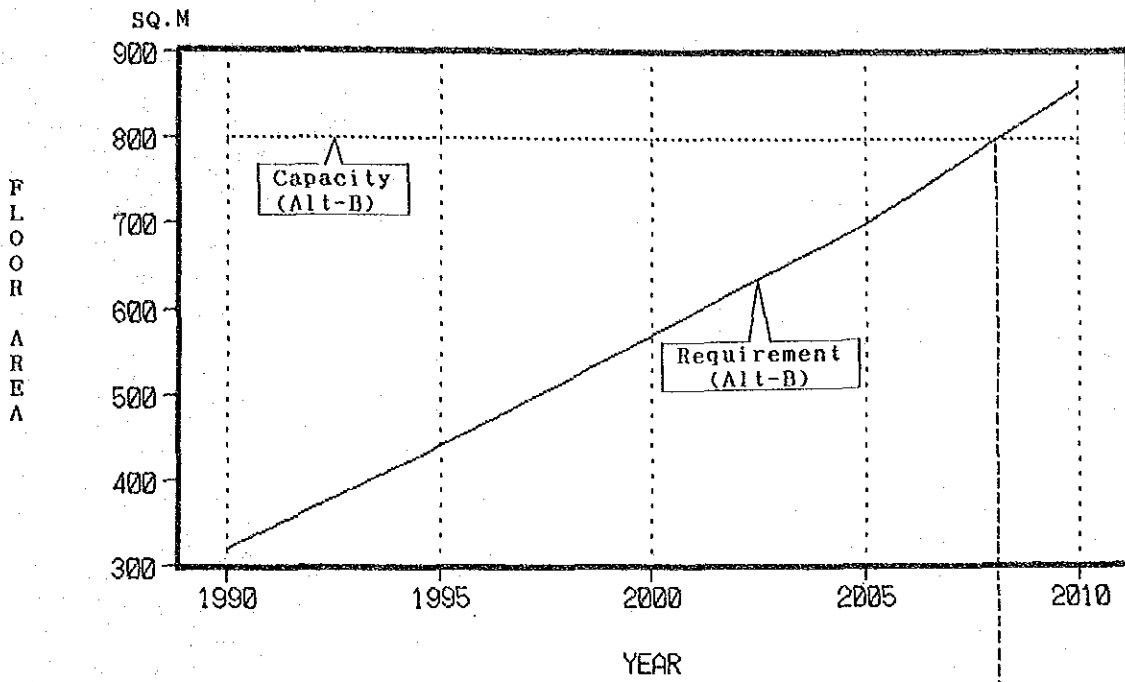
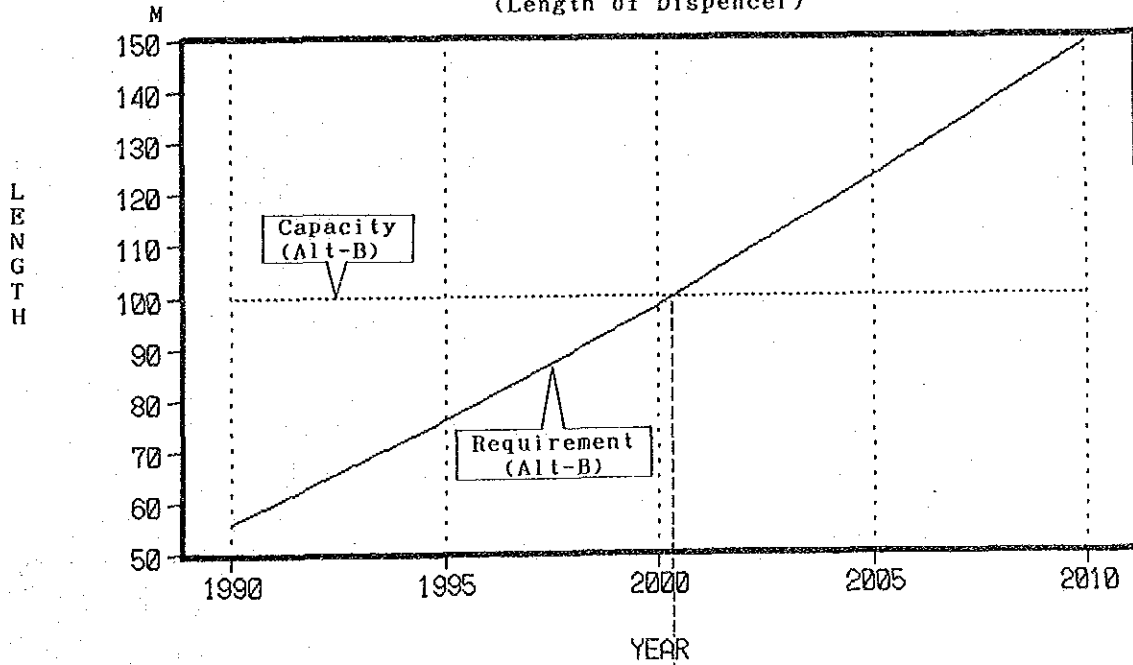


Fig. 9.3.8 Baggage Claim



Serviceable period

Fig. 9.3.9 Baggage Claim Dispenser  
(Length of Dispenser)



Serviceable period

Fig. 9.3.10 Customs Inspection (Arr.)  
(Number of Position)

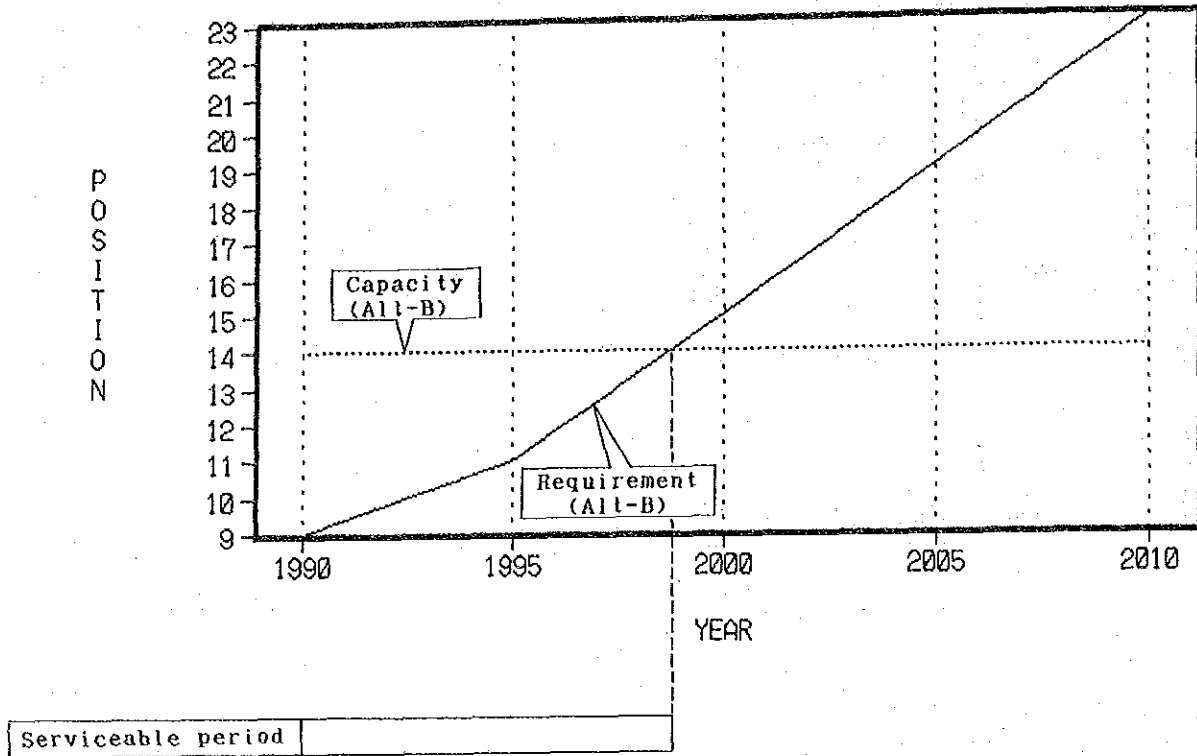


Fig. 9.3.11 Arrival Lobby

