

Appendix 16.2.5 Time Saving Benefits to Foreign Business Passengers on International Routes

Table A Incremental Foreign Business Passengers on International Routes

Year	Percentage Foreigner	Percentage Business	Incremental Passengers
1995	70%	47%	
1996	70%	47%	
1997	69%	47%	
1998	69%	47%	
1999	68%	47%	
2000	68%	47%	
2001	67%	47%	
2002	67%	47%	
2003	66%	47%	
2004	66%	47%	
2005	65%	47%	
2006	65%	47%	64,000
2007	64%	47%	133,000
2008	64%	47%	208,000
2009	63%	47%	290,000
2010	63%	47%	379,000
2011	62%	47%	457,000
2012	62%	47%	541,000
2013	61%	47%	630,000
2014	61%	47%	625,000
2015	60%	47%	620,000
2016	60%	47%	620,000
2017	60%	47%	620,000
2018	60%	47%	620,000
2019	60%	47%	620,000
2020	60%	47%	620,000
2021	60%	47%	620,000
2022	60%	47%	620,000
2023	60%	47%	620,000
2024	60%	47%	620,000
2025	60%	47%	620,000

Note 1: The percentage of foreigner is forecasted to decrease from the present 70% to 60% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of business passengers within foreign passengers on international routes is assumed to remain at 47% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Appendix 16.2.5 Time Saving Benefits to Foreign Business Passengers on International Routes  
Table B Time Saving Benefit to Foreign Business Passengers on International Routes

Year	Time Value (US\$/hour)	Economic Cost before Boarding in the WOP Case			Economic Cost before Boarding in the WOP Case			Economic Cost before Boarding in the WOP Case			Benefit per Passenger (US\$)	Contribution to Vietnamese Economy (US\$)	Incremental Passengers	Total Benefit ('000 US\$)
		Time before Boarding (hour)	Cost before Boarding (US\$)	Air Travel Vinh - HCMC (US\$)	Train Cost Hanoi - Vinh (US\$)	Airport Charge and Access Cost (US\$)	Total Cost before Boarding (US\$)	Time before Boarding at Noi Bai (hour)	Cost before Boarding (US\$)	Airport Charge and Access Cost (US\$)				
1995	20.00	12.25	245.00	78.59	7.27	9.61	347.47	6.00	120.00	6.91	125.91	213.56	21.36	105.13
1996	20.20	12.25	247.45	78.59	7.27	9.61	349.92	6.00	121.20	6.91	128.11	214.81	21.48	106.13
1997	20.40	12.25	249.92	78.59	7.27	9.61	352.40	6.00	122.41	6.91	130.32	216.08	21.61	107.13
1998	20.61	12.25	252.42	78.59	7.27	9.61	354.90	6.00	123.64	6.91	132.55	217.35	21.74	108.13
1999	20.81	12.25	254.96	78.59	7.27	9.61	357.42	6.00	124.97	6.91	134.78	218.64	21.86	109.13
2000	21.02	12.25	257.50	78.59	7.27	9.61	360.00	6.00	126.32	6.91	137.03	219.94	21.99	110.13
2001	21.23	11.98	257.23	78.59	7.28	9.61	359.72	6.00	127.38	6.91	138.29	221.23	22.12	111.13
2002	21.44	11.98	256.93	78.59	7.32	9.61	359.44	6.00	128.66	6.91	139.57	222.57	22.26	112.13
2003	21.68	11.85	256.59	78.59	7.34	9.61	359.13	6.00	129.94	6.91	140.85	223.94	22.41	113.13
2004	21.87	11.71	256.23	78.59	7.36	9.61	358.79	6.00	131.24	6.91	142.13	225.33	22.56	114.13
2005	22.09	11.58	255.83	78.59	7.38	9.61	358.41	6.00	132.55	6.91	143.48	226.74	22.71	115.13
2006	22.31	11.36	255.37	78.59	7.41	9.61	357.98	6.00	133.89	6.91	144.85	228.17	22.86	116.13
2007	22.54	11.15	254.84	78.59	7.44	9.61	357.51	6.00	135.22	6.91	146.23	229.62	23.01	117.13
2008	22.76	10.93	254.23	78.59	7.47	9.61	357.00	6.00	136.57	6.91	147.62	231.09	23.16	118.13
2009	22.99	10.72	253.56	78.59	7.50	9.61	356.45	6.00	137.94	6.91	149.03	232.58	23.31	119.13
2010	23.22	10.50	252.80	78.59	7.53	9.61	355.85	6.00	139.32	6.91	150.45	234.09	23.46	120.13
2011	23.45	10.48	252.06	78.59	7.53	9.61	355.21	6.00	140.71	6.91	151.88	235.62	23.61	121.13
2012	23.69	10.45	247.52	78.59	7.54	9.61	345.26	6.00	142.12	6.91	153.33	237.17	23.76	122.13
2013	23.92	10.43	249.40	78.59	7.54	9.61	345.14	6.00	143.54	6.91	154.80	238.74	23.91	123.13
2014	24.16	10.40	251.29	78.59	7.54	9.61	347.03	6.00	144.97	6.91	156.27	240.33	24.06	124.13
2015	24.40	10.38	253.19	78.59	7.55	9.61	348.94	6.00	146.42	6.91	157.77	241.94	24.21	125.13
2016	24.65	10.35	255.11	78.59	7.55	9.61	350.86	6.00	147.89	6.91	159.28	243.57	24.36	126.13
2017	24.89	10.33	257.03	78.59	7.56	9.61	352.79	6.00	149.37	6.91	160.80	245.22	24.51	127.13
2018	25.14	10.30	258.98	78.59	7.56	9.61	354.73	6.00	150.86	6.91	162.34	246.89	24.66	128.13
2019	25.39	10.28	260.93	78.59	7.56	9.61	356.69	6.00	152.37	6.91	163.89	248.58	24.81	129.13
2020	25.65	10.25	262.90	78.59	7.57	9.61	358.67	6.00	153.89	6.91	165.46	250.29	24.96	130.13
2021	25.91	10.23	265.33	78.59	7.57	9.61	361.25	6.00	155.43	6.91	167.00	252.02	25.11	131.13
2022	26.16	10.25	268.18	78.59	7.57	9.61	363.95	6.00	156.99	6.91	168.60	253.77	25.26	132.13
2023	26.43	10.25	270.86	78.59	7.57	9.61	366.63	6.00	158.55	6.91	170.23	255.54	25.41	133.13
2024	26.69	10.25	273.57	78.59	7.57	9.61	369.34	6.00	160.14	6.91	171.82	257.33	25.56	134.13
2025	26.96	10.23	276.31	78.59	7.57	9.61	372.08	6.00	161.74	6.91	173.44	259.14	25.71	135.13

Note 1: Average time value of foreign business passengers in 1995 is estimated as US\$20 per hour.

Note 2: Average time value of foreign business passengers is assumed to increase at 1% per annum.

Note 3: The break down of the required time before boarding is as follows: The shortening of rail travel time up to the year 2010 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (1), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)			WOP Case (hours)		
	Waiting at Train Station	Rail Travel Hanoi - Vinh	Air Travel Vinh - HCMC	Transfer at Vinh - HCMC	Transfer at Tan Son Nhat	Total before Boarding
1995	0.50	6.00	2.00	1.75	2.00	12.25
2000	0.50	6.00	2.00	1.75	2.00	12.25
2005	0.50	5.33	2.00	1.75	2.00	11.58
2010	0.50	4.25	2.00	1.75	2.00	10.50
2020	0.50	4.00	2.00	1.75	2.00	10.25
2025	0.50	4.00	2.00	1.75	2.00	10.25

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic air transport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75% with current airfare for Vietnamese.

Note 7: The economic cost of passenger service charge at the airport is estimated as US\$12 for international departing passengers and US\$2.7 for domestic departing passengers.

Note 8: 10% of the benefits attributing to foreign business passengers are assumed to contribute to Vietnamese economy through reduced costs of joint ventures.

Appendix 16.2.6 Time Saving Benefit to Vietnamese Business Passengers on Domestic Routes

Table A Incremental Vietnamese Business Passengers on Domestic Routes

Year	Percentage Vietnamese	Percentage Business	Hanoi - HCMC	Hanoi - Danang	Hanoi - Hue	Hanoi - Nha Trang	Hanoi - Others	Total
1995	58%	61%						
1996	59%	61%						
1997	60%	61%						
1998	61%	61%						
1999	62%	61%						
2000	64%	61%						
2001	65%	61%						
2002	66%	61%						
2003	67%	61%						
2004	68%	61%						
2005	69%	61%						
2006	70%	61%	91,000	31,000	3,000	1,000	1,000	127,000
2007	71%	61%	191,000	67,000	6,000	3,000	3,000	270,000
2008	72%	61%	302,000	110,000	9,000	4,000	4,000	429,000
2009	73%	61%	425,000	159,000	13,000	5,000	5,000	607,000
2010	75%	61%	560,000	216,000	16,000	6,000	7,000	805,000
2011	76%	61%	681,000	267,000	19,000	8,000	8,000	982,000
2012	77%	61%	812,000	324,000	22,000	9,000	9,000	1,176,000
2013	78%	61%	955,000	386,000	25,000	10,000	11,000	1,388,000
2014	79%	61%	965,000	397,000	25,000	10,000	11,000	1,407,000
2015	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2016	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2017	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2018	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2019	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2020	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2021	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2022	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2023	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2024	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000
2025	80%	61%	975,000	407,000	24,000	10,000	11,000	1,427,000

Note 1: The percentage of Vietnamese is forecasted to increase from the present 58% to 80% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of business passengers within Vietnamese passengers on domestic routes is assumed to remain at 61% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Appendix 16.2.6 Time Saving Benefit to Vietnamese Business Passengers on Domestic Routes  
Table B Time Saving Benefit to Vietnamese Business Passengers on Hanoi - Ho Chi Minh Route

Year	Time Value (US\$/hour)	Economic Cost of Travel in the WOP Case				Economic Cost of Travel in the WP Case				Total Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit ('000 US\$)	
		Time via Airport (hour)	Time via Train (hour)	Air Travel Cost (US\$)	Airport Charge and Access Cost (US\$)	Time by Direct Air Travel (hour)	Cost of Travel (US\$)	Air Travel Cost (US\$)	Airport Charge and Access Cost (US\$)				
1995	1.50	11.25	16.50	78.50	3.61	6.00	9.00	84.04	3.61	97.25	9.10	(15)	(15)
1996	1.61	11.25	16.14	78.50	3.61	6.00	9.00	84.04	3.61	97.92	9.69	(15)	(15)
1997	1.70	11.25	15.50	78.50	3.61	6.00	9.00	84.04	3.61	98.65	10.33	(15)	(15)
1998	1.86	11.25	20.98	78.50	3.61	6.00	10.44	84.04	3.61	99.43	11.01	(15)	(15)
1999	2.00	11.25	22.94	78.50	3.61	6.00	12.02	84.04	3.61	100.26	11.74	(15)	(15)
2000	2.15	11.25	24.23	78.50	3.61	6.00	13.70	84.04	3.61	101.17	12.53	(15)	(15)
2001	2.31	11.10	25.82	78.50	3.61	6.00	15.12	84.04	3.61	102.10	13.02	(15)	(15)
2002	2.47	10.85	27.10	78.50	3.61	6.00	14.85	84.04	3.61	103.09	13.62	(15)	(15)
2003	2.65	10.80	28.05	78.50	3.61	6.00	16.19	84.04	3.61	104.16	14.03	(15)	(15)
2004	2.84	10.65	30.20	78.50	3.61	6.00	18.82	84.04	3.61	105.31	14.54	(15)	(15)
2005	3.05	10.50	32.01	78.50	3.61	6.00	21.59	84.04	3.61	106.54	15.06	(15)	(15)
2006	3.24	10.30	33.38	78.50	3.61	6.00	24.56	84.04	3.61	107.89	15.50	(15)	(15)
2007	3.44	10.10	34.79	78.50	3.61	6.00	27.44	84.04	3.61	109.31	15.92	(15)	(15)
2008	3.66	9.90	36.25	78.50	3.61	6.00	30.82	84.04	3.61	110.82	16.31	(15)	(15)
2009	3.89	9.70	37.78	78.50	3.61	6.00	34.26	84.04	3.61	112.40	16.66	(15)	(15)
2010	4.14	9.50	39.31	78.50	3.61	6.00	37.53	84.04	3.61	113.07	16.97	(15)	(15)
2011	4.39	9.40	41.32	78.50	3.61	6.00	40.66	84.04	3.61	114.41	17.24	(15)	(15)
2012	4.60	9.45	43.44	78.50	3.61	6.00	43.88	84.04	3.61	115.63	17.35	(15)	(15)
2013	4.85	9.43	45.66	78.50	3.61	6.00	47.11	84.04	3.61	116.73	17.32	(15)	(15)
2014	5.11	9.40	48.00	78.50	3.61	6.00	50.25	84.04	3.61	117.60	17.16	(15)	(15)
2015	5.38	9.34	50.48	78.50	3.61	6.00	53.29	84.04	3.61	118.30	16.86	(15)	(15)
2016	5.65	9.35	52.84	78.50	3.61	6.00	56.24	84.04	3.61	118.75	16.44	(15)	(15)
2017	5.93	9.33	55.34	78.50	3.61	6.00	59.00	84.04	3.61	118.95	15.92	(15)	(15)
2018	6.23	9.30	57.95	78.50	3.61	6.00	61.56	84.04	3.61	118.90	15.31	(15)	(15)
2019	6.54	9.28	60.68	78.50	3.61	6.00	63.94	84.04	3.61	118.50	14.54	(15)	(15)
2020	6.87	9.25	63.54	78.50	3.61	6.00	66.15	84.04	3.61	117.60	13.62	(15)	(15)
2021	7.21	9.25	66.72	78.50	3.61	6.00	68.20	84.04	3.61	116.00	12.53	(15)	(15)
2022	7.57	9.23	70.09	78.50	3.61	6.00	70.00	84.04	3.61	113.69	11.01	(15)	(15)
2023	7.95	9.25	73.56	78.50	3.61	6.00	71.71	84.04	3.61	110.69	9.69	(15)	(15)
2024	8.35	9.25	77.24	78.50	3.61	6.00	73.24	84.04	3.61	106.94	7.92	(15)	(15)
2025	8.77	9.25	81.10	78.50	3.61	6.00	74.66	84.04	3.61	102.45	5.92	(15)	(15)

Note 1: Average time value of Vietnamese business passengers in 1995 are estimated to be US\$1.5 per hour, which corresponds to US\$300 per month.  
Note 2: Average time value of Vietnamese business passengers will increase at the same rate as GDP/capita growth rate as follows:  
1995-2000 7.5% per annum 2005-2010 6.4% per annum  
2000-2005 7.2% per annum 2010-2025 5.0% per annum

Note 3: The break down of the travel time is as follows. The shortening of rail travel time up to the year 2010 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam. Interim Report (I), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)				WP Case (hours)			
	Waiting at Train Station	Rail Travel Hanoi-Vinh	Transfer in Vinh	Air Travel	Airport Access and Waiting	Air Travel	Airport Egress	Total
1995	0.50	6.00	2.00	1.75	3.00	2.00	1.00	6.00
2000	0.50	6.00	2.00	1.75	3.00	2.00	1.00	6.00
2005	0.50	5.33	2.00	1.75	3.00	2.00	1.00	6.00
2010	0.50	4.25	2.00	1.75	3.00	2.00	1.00	6.00
2020	0.50	4.00	2.00	1.75	3.00	2.00	1.00	6.00
2025	0.50	4.00	2.00	1.75	3.00	2.00	1.00	6.00

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNIR at present.  
Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.  
Note 6: The economic cost of domestic air transport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.  
Note 7: The economic cost of domestic passenger service charge at the airport is estimated as US\$2.7. The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WP cases.

Appendix 16.2.6 Time Saving Benefit to Vietnamese Business Passengers on Domestic Routes  
Table C. Time Saving Benefit to Vietnamese Business Passengers on Hanoi - Danang Route

Year	Time Value (US\$/hour)	Economic Cost of Travel in the WOP Case			Economic Cost of Travel in the WP Case			Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit (1000 US\$)
		Time via Air (hour)	Cost of Travel (US\$)	Air Transfer Cost (US\$)	Time by Direct Air Travel (hour)	Cost of Travel (US\$)	Air Transfer Cost (US\$)			
1965	1.50	10.42	15.83	36.27	6	7.76	41.11	3.61	52.47	10.31
1966	1.61	10.42	16.80	36.27	7.27	8.34	41.11	3.61	53.05	10.90
1967	1.73	10.42	18.06	36.27	7.27	8.96	41.11	3.61	53.66	11.54
1968	1.86	10.42	19.43	36.27	7.27	9.63	41.11	3.61	54.35	12.22
1969	2.00	10.42	20.87	36.27	7.27	10.36	41.11	3.61	55.07	12.95
1970	2.15	10.42	22.44	36.27	7.27	11.13	41.11	3.61	55.85	13.74
1971	2.31	10.29	23.75	36.27	7.29	11.93	41.11	3.61	56.65	14.57
1972	2.47	10.15	25.12	36.27	7.32	12.79	41.11	3.61	57.51	15.41
1973	2.65	10.02	26.58	36.27	7.34	13.72	41.11	3.61	58.43	16.30
1974	2.84	9.86	28.11	36.27	7.36	14.70	41.11	3.61	59.42	17.25
1975	3.05	9.75	29.72	36.27	7.38	15.76	41.11	3.61	60.45	18.21
1976	3.28	9.53	30.90	36.27	7.41	16.79	41.11	3.61	61.47	19.24
1977	3.44	9.32	32.10	36.27	7.44	17.81	41.11	3.61	62.53	20.31
1978	3.66	9.10	33.33	36.27	7.47	18.85	41.11	3.61	63.65	21.43
1979	3.86	8.89	34.59	36.27	7.50	19.90	41.11	3.61	64.84	22.60
1980	4.14	8.67	35.88	36.27	7.53	21.08	41.11	3.61	66.11	23.82
1981	4.36	8.55	37.10	36.27	7.53	22.55	41.11	3.61	67.27	25.09
1982	4.60	8.62	38.62	36.27	7.54	23.77	41.11	3.61	68.48	26.45
1983	4.85	8.00	41.64	36.27	7.54	25.05	41.11	3.61	69.77	27.86
1984	5.11	8.57	43.76	36.27	7.54	26.40	41.11	3.61	71.12	29.30
1985	5.38	8.55	45.90	36.27	7.55	27.83	41.11	3.61	72.55	30.78
1986	5.65	8.53	48.15	36.27	7.56	29.30	41.11	3.61	73.94	32.25
1987	5.93	8.50	50.41	36.27	7.56	30.88	41.11	3.61	75.40	33.70
1988	6.23	8.47	52.77	36.27	7.56	32.21	41.11	3.61	76.93	35.15
1989	6.45	8.45	55.25	36.27	7.56	33.82	41.11	3.61	78.54	36.60
1990	6.87	8.42	57.84	36.27	7.57	35.52	41.11	3.61	80.23	38.05
1991	7.31	8.43	60.75	36.27	7.57	37.28	41.11	3.61	82.01	39.51
1992	7.57	8.42	63.77	36.27	7.57	39.16	41.11	3.61	83.87	40.96
1993	7.95	8.42	66.96	36.27	7.57	41.11	41.11	3.61	85.83	42.41
1994	8.35	8.42	70.31	36.27	7.57	43.17	41.11	3.61	87.89	43.87
1995	8.77	8.42	73.82	36.27	7.57	45.33	41.11	3.61	90.05	45.33

Note 1: Average time value of Vietnamese business passengers in 1995 are estimated to be US\$15 per hour, which corresponds to US\$300 per month.  
Note 2: Average time value of Vietnamese business passengers will increase at the same rate as GDP/capita growth rate as follows:  
1965-2000: 7.5% per annum  
2000-2005: 7.2% per annum  
2005-2010: 6.4% per annum  
2010-2025: 5.0% per annum

Note 3: The break down of the travel time is as follows: The shortening of rail travel time up to the year 2010 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (1), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	Waiting at Train Station			Transfer in Hanoi - Vinh			WP Case (hours)		
	Waiting at Train Station	Rail Travel Hanoi - Vinh	Air Transfer	Transfer in Hanoi - Vinh	Air Transfer	Airport Access and Waiting	Air Transfer	Airport Egress	Total
1965	0.50	6.00	2.00	0.92	1.00	3.00	1.17	1.00	5.17
2000	0.50	6.00	2.00	0.92	1.00	3.00	1.17	1.00	5.17
2005	0.50	5.33	2.00	0.92	1.00	3.00	1.17	1.00	5.17
2010	0.50	4.25	2.00	0.92	1.00	3.00	1.17	1.00	5.17
2020	0.50	4.00	2.00	0.92	1.00	3.00	1.17	1.00	5.17
2025	0.50	4.00	2.00	0.92	1.00	3.00	1.17	1.00	5.17

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNKR at present.  
This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.  
Note 5: The economic cost of domestic air transport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.  
Note 6: The economic cost of domestic passenger service charge at the airport is estimated as US\$2.7.  
Note 7: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WP cases.

Table D Time Saving Benefit to Vietnamese Business Passengers on Hanoi - Hue Route

Year	Time Value (US\$/hour)	Economic Cost of Travel in the WOP Case				Economic Cost of Travel in the WIP Case				Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit (000 US\$)
		Time via Vinh Airport (hour)	Time via Air (hour)	Time via Train (hour)	Time via Air and Charge Access (hour)	Time via Air (hour)	Time via Air and Charge Access (hour)	Time via Train (hour)	Time via Air and Charge Access (hour)			
1995	1.50	10.50	15.75	31.44	7.27	56.07	5.08	7.52	36.27	3.61	47.50	10.57
1996	1.61	10.50	16.93	31.44	7.27	59.25	5.05	8.19	36.27	3.61	48.07	11.18
1997	1.73	10.50	18.20	31.44	7.27	60.52	5.05	8.91	36.27	3.61	48.90	11.83
1998	1.86	10.50	19.57	31.44	7.27	61.88	5.05	9.47	36.27	3.61	49.35	12.54
1999	2.00	10.50	21.03	31.44	7.27	63.36	5.05	10.16	36.27	3.61	50.06	13.29
2000	2.15	10.50	22.61	31.44	7.27	64.93	5.05	10.84	36.27	3.61	50.82	14.11
2001	2.31	10.37	23.93	31.44	7.29	66.27	5.05	11.73	36.27	3.61	51.61	14.86
2002	2.47	10.23	25.32	31.44	7.32	67.66	5.05	12.57	36.27	3.61	52.45	15.23
2003	2.65	10.10	26.79	31.44	7.34	69.17	5.05	13.46	36.27	3.61	53.36	15.61
2004	2.84	9.96	28.34	31.44	7.36	70.74	5.05	14.45	36.27	3.61	54.33	16.41
2005	3.05	9.83	29.97	31.44	7.38	72.40	5.05	15.49	36.27	3.61	55.37	17.03
2006	3.24	9.61	31.76	31.44	7.41	73.81	5.05	16.46	36.27	3.61	56.34	17.27
2007	3.44	9.40	32.37	31.44	7.44	74.96	5.05	17.50	36.27	3.61	57.38	17.46
2008	3.66	9.18	33.82	31.44	7.47	76.14	5.05	18.60	36.27	3.61	58.48	17.60
2009	3.90	8.97	34.90	31.44	7.50	77.45	5.05	19.77	36.27	3.61	59.66	17.79
2010	4.14	8.75	36.21	31.44	7.53	78.78	5.05	21.02	36.27	3.61	60.90	17.88
2011	4.36	8.53	38.05	31.44	7.53	80.83	5.05	22.76	36.27	3.61	62.04	18.56
2012	4.60	8.30	39.90	31.44	7.54	82.57	5.05	23.35	36.27	3.61	63.23	19.34
2013	4.85	8.08	42.03	31.44	7.54	84.82	5.05	24.61	36.27	3.61	64.49	20.12
2014	5.11	7.85	44.17	31.44	7.54	86.76	5.05	25.94	36.27	3.61	65.82	20.94
2015	5.36	7.63	46.42	31.44	7.55	89.02	5.05	27.34	36.27	3.61	67.22	21.79
2016	5.65	7.40	48.60	31.44	7.55	91.20	5.05	28.71	36.27	3.61	68.56	22.61
2017	5.90	7.18	50.88	31.44	7.56	93.48	5.05	30.15	36.27	3.61	70.03	23.46
2018	6.23	6.95	53.27	31.44	7.56	95.58	5.05	31.65	36.27	3.61	71.53	24.34
2019	6.54	6.73	55.77	31.44	7.56	98.36	5.05	33.24	36.27	3.61	73.12	25.26
2020	6.87	6.50	58.30	31.44	7.57	101.00	5.05	34.90	36.27	3.61	74.75	26.22
2021	7.21	6.30	61.31	31.44	7.57	103.92	5.05	36.54	36.27	3.61	76.32	27.40
2022	7.57	6.10	64.58	31.44	7.57	106.99	5.05	38.47	36.27	3.61	78.36	28.63
2023	7.96	5.90	67.58	31.44	7.57	110.21	5.05	40.40	36.27	3.61	80.28	29.63
2024	8.35	5.70	70.97	31.44	7.57	113.59	5.05	42.42	36.27	3.61	82.30	31.29
2025	8.77	5.50	74.52	31.44	7.57	117.13	5.05	44.54	36.27	3.61	84.42	32.71

Note 1: Average time value of Vietnamese business passengers in 1995 are estimated to be US\$1.5 per hour, which corresponds to US\$300 per month.

Note 2: Average time value of Vietnamese business passengers will increase at the same rate as GDP/capita growth rate as follows:

1995-2000 7.5% per annum  
 2005-2010 6.4% per annum  
 2010-2025 5.0% per annum

Note 3: The break down of the travel time is as follows: The shortening of rail travel time up to the year 2010 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (I), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)				WIP Case (hours)			
	Waiting at Train Station	Rail Travel Hand - Vinh	Transfer in Vinh	Air Travel	Waiting and Airport Access	Air Travel	Airport Access	Total
1995	0.50	6.00	2.00	1.00	1.00	10.50	1.00	13.00
2000	0.50	6.00	2.00	1.00	1.00	10.50	1.00	13.00
2005	0.50	5.33	2.00	1.00	1.00	9.83	1.00	10.83
2010	0.50	4.23	2.00	1.00	1.00	8.75	1.00	9.75
2020	0.50	4.00	2.00	1.00	1.00	8.50	1.00	9.50
2025	0.50	4.00	2.00	1.00	1.00	8.50	1.00	9.50

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic air transport is estimated as 130% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.

Note 7: The economic cost of domestic passenger service charge at the airport is estimated as US\$2.7.

Note 8: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WIP cases.

Appendix 1E.2.6 Time Saving Benefit to Vietnamese Business Passengers on Domestic Routes  
Table E Time Saving Benefit to Vietnamese Business Passengers on Hanoi - Nha Trang Route

Year	Time Value (US\$/hour)	Economic Cost of Travel in the WOP Case				Economic Cost of Travel in the WIP Case				Benefit Per Passenger (US\$)	Incremental Passengers	Total Benefit (000 US\$)
		Time via Air (hour)	Time via Train (hour)	Air Travel Cost (US\$)	Train Travel Cost (US\$)	Time by Air (hour)	Time by Train (hour)	Air Travel Cost (US\$)	Train Travel Cost (US\$)			
1995	1.50	10.75	18.73	59.25	7.27	3.61	8.25	3.61	8.25	84.08	10.31	10.31
1996	1.81	10.75	17.33	59.25	7.27	3.61	8.25	3.61	8.25	84.08	10.90	11.54
1997	1.75	10.75	18.63	59.25	7.27	3.61	8.25	3.61	8.25	84.08	11.54	12.22
1998	1.88	10.75	20.03	59.25	7.27	3.61	8.25	3.61	8.25	84.08	12.22	12.95
1999	2.00	10.75	21.53	59.25	7.27	3.61	8.25	3.61	8.25	84.08	12.95	13.74
2000	2.15	10.75	23.15	59.25	7.27	3.61	8.25	3.61	8.25	84.08	13.74	14.27
2001	2.31	10.32	24.51	59.25	7.23	3.61	8.25	3.61	8.25	84.08	14.27	14.81
2002	2.47	10.46	25.94	59.25	7.33	3.61	8.25	3.61	8.25	84.08	14.81	15.36
2003	2.65	10.35	27.45	59.25	7.34	3.61	8.25	3.61	8.25	84.08	15.36	15.93
2004	2.84	10.21	29.06	59.25	7.38	3.61	8.25	3.61	8.25	84.08	15.93	16.51
2005	3.05	10.08	30.73	59.25	7.39	3.61	8.25	3.61	8.25	84.08	16.51	17.13
2006	3.24	9.86	31.97	59.25	7.41	3.61	8.25	3.61	8.25	84.08	17.13	17.78
2007	3.44	9.65	33.24	59.25	7.44	3.61	8.25	3.61	8.25	84.08	17.78	18.51
2008	3.66	9.43	34.54	59.25	7.47	3.61	8.25	3.61	8.25	84.08	18.51	19.30
2009	3.89	9.22	35.87	59.25	7.50	3.61	8.25	3.61	8.25	84.08	19.30	20.15
2010	4.14	9.00	37.24	59.25	7.53	3.61	8.25	3.61	8.25	84.08	20.15	21.07
2011	4.38	8.98	38.14	59.25	7.53	3.61	8.25	3.61	8.25	84.08	21.07	22.05
2012	4.60	8.95	41.14	59.25	7.54	3.61	8.25	3.61	8.25	84.08	22.05	23.09
2013	4.85	8.93	43.24	59.25	7.54	3.61	8.25	3.61	8.25	84.08	23.09	24.19
2014	5.11	8.90	45.45	59.25	7.54	3.61	8.25	3.61	8.25	84.08	24.19	25.35
2015	5.38	8.88	47.77	59.25	7.55	3.61	8.25	3.61	8.25	84.08	25.35	26.57
2016	5.65	8.85	50.02	59.25	7.55	3.61	8.25	3.61	8.25	84.08	26.57	27.85
2017	5.93	8.83	52.37	59.25	7.56	3.61	8.25	3.61	8.25	84.08	27.85	29.18
2018	6.23	8.80	54.83	59.25	7.56	3.61	8.25	3.61	8.25	84.08	29.18	30.56
2019	6.54	8.78	57.41	59.25	7.56	3.61	8.25	3.61	8.25	84.08	30.56	32.00
2020	6.87	8.75	60.11	59.25	7.57	3.61	8.25	3.61	8.25	84.08	32.00	33.50
2021	7.21	8.75	63.11	59.25	7.57	3.61	8.25	3.61	8.25	84.08	33.50	35.05
2022	7.57	8.75	66.27	59.25	7.57	3.61	8.25	3.61	8.25	84.08	35.05	36.66
2023	7.95	8.75	69.58	59.25	7.57	3.61	8.25	3.61	8.25	84.08	36.66	38.33
2024	8.35	8.75	73.06	59.25	7.57	3.61	8.25	3.61	8.25	84.08	38.33	40.06
2025	8.77	8.75	76.71	59.25	7.57	3.61	8.25	3.61	8.25	84.08	40.06	41.85

Note 1: Average time value of Vietnamese business passengers in 1995 are estimated to be US\$1.5 per hour, which corresponds to US\$300 per month.  
Note 2: Average time value of Vietnamese business passengers will increase at the same rate as GDP/capita growth rate as follows:  
1995-2000 7.5% per annum  
2005-2010 6.4% per annum  
2010-2025 5.0% per annum

Note 3: The break down of the travel time is as follows: The shortening of rail travel time up to the year 2010 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (I), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNRR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic air transport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.

Note 7: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WIP cases.

Year	WOP Case (hours)				WIP Case (hours)			
	Waiting at Train Station	Rail Travel Hanoi-Vinh	Transfer in Vinh	Air Travel Egress	Air Travel Egress	Air Travel Egress	Air Travel Egress	Total
1995	0.50	6.00	2.00	1.25	1.00	1.50	1.00	5.50
2000	0.50	6.00	2.00	1.25	1.00	1.50	1.00	5.50
2005	0.50	5.33	2.00	1.25	1.00	1.50	1.00	5.50
2010	0.50	4.25	2.00	1.25	1.00	1.50	1.00	5.50
2020	0.50	4.00	2.00	1.25	1.00	1.50	1.00	5.50
2025	0.50	4.00	2.00	1.25	1.00	1.50	1.00	5.50

Note 8: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNRR at present.  
Note 9: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.  
Note 10: The economic cost of domestic air transport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.  
Note 11: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WIP cases.

Table F Summary: Time Saving Benefit to Vietnamese Business Passengers on Domestic Routes

Unit: '000 US\$

Year	Hanoi - HCMC	Hanoi - Danang	Hanoi - Hue	Hanoi - Nha Trang	Total
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006	1,392	1,274	109	39	2,815
2007	2,964	2,754	218	117	6,054
2008	4,744	4,522	326	156	9,748
2009	6,739	6,536	472	195	13,943
2010	8,941	8,890	590	235	18,656
2011	11,334	10,976	689	313	23,312
2012	14,089	13,319	798	352	28,558
2013	17,276	15,868	907	391	34,441
2014	18,202	16,320	907	391	35,820
2015	19,177	16,731	871	391	37,170
2016	19,928	16,731	871	391	37,921
2017	20,710	16,731	871	391	38,703
2018	21,524	16,731	871	391	39,516
2019	22,370	16,731	871	391	40,363
2020	23,251	16,731	871	391	41,244
2021	24,339	16,731	871	391	42,332
2022	25,482	16,731	871	391	43,475
2023	26,692	16,731	871	391	44,675
2024	27,942	16,731	871	391	45,935
2025	29,265	16,731	871	391	47,258



Appendix 16.2.7 Time Saving Benefit to Foreign Business Passengers on Domestic Routes

Table A Incremental Foreign Business Passengers on Domestic Routes

Year	Percentage Foreigners	Percentage Business	Hanoi - HCMC	Hanoi - Danang	Hanoi - Hue	Hanoi - Nha Trang	Hanoi - Others	Total
1995	42%	59%						
1996	41%	59%						
1997	40%	59%						
1998	39%	59%						
1999	38%	59%						
2000	37%	59%						
2001	35%	59%						
2002	34%	59%						
2003	33%	59%						
2004	32%	59%						
2005	31%	59%						
2006	30%	59%	37,000	13,000	1,000	1,000	1,000	53,000
2007	29%	59%	75,000	26,000	2,000	1,000	1,000	106,000
2008	28%	59%	112,000	41,000	3,000	1,000	1,000	159,000
2009	27%	59%	149,000	56,000	4,000	2,000	2,000	213,000
2010	26%	59%	185,000	72,000	5,000	2,000	2,000	267,000
2011	24%	59%	213,000	83,000	6,000	2,000	3,000	307,000
2012	23%	59%	239,000	95,000	6,000	3,000	3,000	346,000
2013	22%	59%	264,000	107,000	7,000	3,000	3,000	383,000
2014	21%	59%	250,000	103,000	6,000	3,000	3,000	364,000
2015	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2016	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2017	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2018	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2019	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2020	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2021	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2022	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2023	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2024	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000
2025	20%	59%	236,000	98,000	6,000	2,000	3,000	345,000

Note 1: The percentage of foreigner is forecasted to decrease from the present 42% to 20% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of business passengers within foreign passengers on domestic routes is assumed to remain at 59% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Table B Time Saving Benefit to Foreign Business Passengers on Hanoi - Ho Chi Minh Route

Year	Time Value (US\$/hour)	Time via Vinh Airport (hour)			Economic Cost of Travel in the WOP Case			Economic Cost of Travel in the WIP Case			Benefit per Passenger (US\$)	Contribution to Vietnamese Economy (US\$)	Incremental Passengers	Total Benefit (000 US\$)
		Waiting at Train Station	Rail Travel	Transfer in Hanoi-Vinh	Time via Air Travel	Time by Direct Air Travel	Cost of Travel	Air Travel Cost	Charge and Access Cost	Total Travel Cost				
1995	20.00	11.25	235.00	78.50	7.27	3.01	314.24	84.84	3.61	208.25	106.23	75,000	1,989	
1996	20.20	11.25	227.25	78.50	7.27	3.01	316.72	84.84	3.61	209.45	107.28	75,000	1,989	
1997	20.40	11.25	220.52	78.50	7.27	3.01	319.00	84.84	3.61	210.66	108.34	75,000	1,989	
1998	20.61	11.25	214.82	78.50	7.27	3.01	321.29	84.84	3.61	211.88	109.41	75,000	1,989	
1999	20.81	11.25	209.14	78.50	7.27	3.01	323.58	84.84	3.61	213.12	110.49	75,000	1,989	
2000	21.02	11.25	203.46	78.50	7.27	3.01	325.86	84.84	3.61	214.37	111.58	75,000	1,989	
2001	21.23	11.10	235.66	78.50	7.27	3.61	328.15	84.84	3.61	215.63	112.67	75,000	1,989	
2002	21.44	10.95	234.80	78.50	7.32	3.61	324.31	84.84	3.61	216.90	107.41	75,000	1,989	
2003	21.65	10.80	233.90	78.50	7.34	3.61	323.44	84.84	3.61	218.19	105.25	75,000	1,989	
2004	21.87	10.65	232.95	78.50	7.36	3.61	322.52	84.84	3.61	219.48	103.03	75,000	1,989	
2005	22.09	10.50	231.97	78.50	7.38	3.61	321.55	84.84	3.61	220.80	100.75	75,000	1,989	
2006	22.31	10.30	230.83	78.50	7.41	3.61	319.44	84.84	3.61	222.13	97.31	75,000	1,989	
2007	22.54	10.10	229.62	78.50	7.44	3.61	317.26	84.84	3.61	223.46	93.80	75,000	1,989	
2008	22.76	9.90	228.34	78.50	7.47	3.61	315.01	84.84	3.61	224.82	90.20	75,000	1,989	
2009	22.99	9.70	227.00	78.50	7.50	3.61	312.70	84.84	3.61	226.16	86.52	75,000	1,989	
2010	23.22	9.50	225.58	78.50	7.53	3.61	310.31	84.84	3.61	227.50	82.75	75,000	1,989	
2011	23.45	9.45	224.20	78.50	7.55	3.61	311.84	84.84	3.61	228.82	82.80	75,000	1,989	
2012	23.69	9.45	223.63	78.50	7.54	3.61	313.57	84.84	3.61	230.36	83.21	75,000	1,989	
2013	23.92	9.45	225.47	78.50	7.54	3.61	315.21	84.84	3.61	231.78	83.43	75,000	1,989	
2014	24.16	9.40	227.12	78.50	7.54	3.61	316.87	84.84	3.61	233.22	83.67	75,000	1,989	
2015	24.40	9.36	228.79	78.50	7.55	3.61	318.53	84.84	3.61	234.67	83.92	75,000	1,989	
2016	24.65	9.35	230.46	78.50	7.55	3.61	320.21	84.84	3.61	236.13	84.18	75,000	1,989	
2017	24.89	9.35	232.14	78.50	7.56	3.61	321.90	84.84	3.61	237.61	84.43	75,000	1,989	
2018	25.14	9.30	233.83	78.50	7.56	3.61	323.59	84.84	3.61	239.11	84.69	75,000	1,989	
2019	25.39	9.26	235.54	78.50	7.56	3.61	325.30	84.84	3.61	240.61	84.96	75,000	1,989	
2020	25.65	9.25	237.25	78.50	7.57	3.61	327.02	84.84	3.61	242.14	85.24	75,000	1,989	
2021	25.91	9.25	238.97	78.50	7.57	3.61	328.76	84.84	3.61	243.68	85.51	75,000	1,989	
2022	26.16	9.25	242.02	78.50	7.57	3.61	331.79	84.84	3.61	245.23	86.55	75,000	1,989	
2023	26.43	9.25	244.64	78.50	7.57	3.61	334.21	84.84	3.61	246.80	87.41	75,000	1,989	
2024	26.69	9.25	246.88	78.50	7.57	3.61	336.65	84.84	3.61	248.38	88.26	75,000	1,989	
2025	26.96	9.25	249.35	78.50	7.57	3.61	339.12	84.84	3.61	249.96	89.13	75,000	1,989	

Note 1: Average time value of foreign business passengers in 1995 is estimated as US\$30 per hour.

Note 2: Average time value of foreign business passengers is assumed to increase at 1% per annum.

Note 3: The break down of the travel time is as follows. The shortening of rail travel time up to the year 2025 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (1), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)			WIP Case (hours)		
	Waiting at Train Station	Rail Travel	Transfer in Hanoi-Vinh	Air Travel	Airport Access and Waiting	Airport Express
1995	0.50	8.00	2.00	1.75	3.00	2.00
2000	0.50	6.00	2.00	1.75	3.00	2.00
2005	0.50	5.33	2.00	1.75	3.00	2.00
2010	0.50	4.25	2.00	1.75	3.00	2.00
2020	0.50	4.00	2.00	1.75	3.00	2.00
2025	0.50	4.00	2.00	1.75	3.00	2.00

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic passenger service charge at the airport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.

Note 7: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WIP cases.

Note 8: 10% of the benefits attributing to foreign business passengers are assumed to contribute to Vietnamese economy through reduced costs of joint ventures.

Appendix 16.2.7 Time Saving Benefit to Foreign Business Passengers on Domestic Routes

Table C. Time Saving Benefit to Foreign Business Passengers on Hanoi - Danang Route

Year	Time Value (US\$/hour)	Economic Cost of Travel in the WOP Case				Economic Cost of Travel in the WP Case				Benefit per Passenger (US\$)	Contribution to Vietnamese Economy (US\$)	Incremental Passengers	Total Benefit ('000 US\$)
		Time via Vinh Airport (hour)	Time via Hanoi-Vinh (hour)	Air Travel Cost (US\$)	Transfer in Vinh (US\$)	Time by Direct Air Travel (hour)	Time by Air Travel and Airport Access (hour)	Air Travel Cost (US\$)	Transfer in Hanoi (US\$)				
1995	20.00	10.42	10.20	36.27	7.27	3.61	103.30	41.31	3.61	148.12	107.44	(15)	(1.9)
1996	20.20	10.42	10.42	36.27	7.27	3.61	104.43	41.11	3.61	149.15	108.49	(15)	(1.9)
1997	20.40	10.42	10.42	36.27	7.27	3.61	105.54	41.11	3.61	150.20	109.55	(15)	(1.9)
1998	20.61	10.42	10.42	36.27	7.27	3.61	106.65	41.11	3.61	151.25	110.62	(15)	(1.9)
1999	20.81	10.42	10.42	36.27	7.27	3.61	107.76	41.11	3.61	152.32	111.70	(15)	(1.9)
2000	21.02	10.42	10.42	36.27	7.27	3.61	108.87	41.11	3.61	153.39	112.76	(15)	(1.9)
2001	21.23	10.20	10.20	36.27	7.27	3.61	109.98	41.11	3.61	154.46	113.81	(15)	(1.9)
2002	21.44	10.15	10.15	36.27	7.32	3.61	111.09	41.11	3.61	155.58	114.86	(15)	(1.9)
2003	21.66	10.02	10.02	36.27	7.34	3.61	112.20	41.11	3.61	156.69	115.91	(15)	(1.9)
2004	21.87	9.88	10.02	36.27	7.36	3.61	113.31	41.11	3.61	157.81	116.96	(15)	(1.9)
2005	22.08	9.75	10.02	36.27	7.38	3.61	114.42	41.11	3.61	158.94	118.01	(15)	(1.9)
2006	22.31	9.53	10.02	36.27	7.41	3.61	115.53	41.11	3.61	160.05	119.06	(15)	(1.9)
2007	22.54	9.32	10.00	36.27	7.44	3.61	116.64	41.11	3.61	161.23	120.11	(15)	(1.9)
2008	22.76	9.10	10.00	36.27	7.47	3.61	117.75	41.11	3.61	162.40	121.16	(15)	(1.9)
2009	22.98	8.89	10.00	36.27	7.50	3.61	118.86	41.11	3.61	163.57	122.21	(15)	(1.9)
2010	23.22	8.67	10.00	36.27	7.53	3.61	120.04	41.11	3.61	164.76	123.26	(15)	(1.9)
2011	23.45	8.45	10.00	36.27	7.55	3.61	121.24	41.11	3.61	165.98	124.31	(15)	(1.9)
2012	23.68	8.22	10.00	36.27	7.58	3.61	122.46	41.11	3.61	167.18	125.36	(15)	(1.9)
2013	23.92	8.00	10.00	36.27	7.61	3.61	123.68	41.11	3.61	168.40	126.41	(15)	(1.9)
2014	24.16	7.77	10.00	36.27	7.64	3.61	124.92	41.11	3.61	169.64	127.46	(15)	(1.9)
2015	24.40	7.55	10.00	36.27	7.67	3.61	126.17	41.11	3.61	170.89	128.51	(15)	(1.9)
2016	24.65	7.32	10.00	36.27	7.70	3.61	127.43	41.11	3.61	172.15	129.56	(15)	(1.9)
2017	24.89	7.10	10.00	36.27	7.73	3.61	128.70	41.11	3.61	173.42	130.61	(15)	(1.9)
2018	25.14	6.87	10.00	36.27	7.76	3.61	129.96	41.11	3.61	174.71	131.66	(15)	(1.9)
2019	25.39	6.65	10.00	36.27	7.79	3.61	131.23	41.11	3.61	176.01	132.71	(15)	(1.9)
2020	25.65	6.42	10.00	36.27	7.82	3.61	132.51	41.11	3.61	177.32	133.76	(15)	(1.9)
2021	25.91	6.20	10.00	36.27	7.85	3.61	133.80	41.11	3.61	178.65	134.81	(15)	(1.9)
2022	26.16	5.98	10.00	36.27	7.88	3.61	135.09	41.11	3.61	179.96	135.86	(15)	(1.9)
2023	26.43	5.76	10.00	36.27	7.91	3.61	136.38	41.11	3.61	181.24	136.91	(15)	(1.9)
2024	26.68	5.54	10.00	36.27	7.94	3.61	137.67	41.11	3.61	182.51	137.96	(15)	(1.9)
2025	26.95	5.32	10.00	36.27	7.97	3.61	138.96	41.11	3.61	183.79	139.01	(15)	(1.9)

Note 1: Average time value of foreign business passengers in 1995 is estimated as US\$20 per hour.

Note 2: Average time value of foreign business passengers is assumed to increase at 1% per annum.

Note 3: The break down of the travel time is as follows. The shortening of rail travel time up to the year 2020 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (1), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)				WP Case (hours)			
	Waiting at Train Station	Rail Travel Hanoi-Vinh	Transfer in Vinh	Air Travel	Airport Access and Waiting	Air Travel	Airport Egress	Total
1995	0.50	6.00	2.00	0.92	3.00	1.17	1.00	5.17
2000	0.50	6.00	2.00	0.92	3.00	1.17	1.00	5.17
2005	0.50	6.00	2.00	0.92	3.00	1.17	1.00	5.17
2010	0.50	4.25	2.00	0.92	3.00	1.17	1.00	5.17
2020	0.50	4.00	2.00	0.92	3.00	1.17	1.00	5.17
2025	0.50	4.00	2.00	0.92	3.00	1.17	1.00	5.17

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic air transport is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.

Note 7: The economic cost of domestic passenger service charge at the airport is estimated as US\$2.7.

Note 8: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WP cases.

Note 9: 10% of the benefits attributing to foreign business passengers are assumed to contribute to Vietnamese economy through reduced costs of joint ventures.

Appendix 16.2.7 Time Saving Benefit to Foreign Business Passengers on Domestic Routes

Table D. Time Saving Benefit to Foreign Business Passengers on Hanoi - Hue Route

Year	Economic Cost of Travel in the WOP Case				Economic Cost of Travel in the VIP Case				Incremental Passengers	Contribution to Vietnamese Economy (US\$)	Benefit per Passenger (US\$)	Total Benefit ('000 US\$)
	Time Value (US\$/hour)	Time via Airport (hour)	Time via Train (hour)	Time via Air (hour)	Time by Direct Air Travel (hour)	Time by Train (hour)	Time by Air (hour)	Time by Air (hour)				
1995	20.00	10.50	31.44	210.00	7.27	3.61	250.32	101.60	36.27	11.05	110.54	(15)
1996	20.20	10.50	31.44	212.10	7.27	3.61	254.42	102.62	36.27	11.19	111.92	(15)
1997	20.40	10.50	31.44	214.22	7.27	3.61	258.54	103.64	36.27	11.30	113.02	(15)
1998	20.61	10.50	31.44	216.36	7.27	3.61	262.68	104.66	36.27	11.41	114.12	(15)
1999	20.81	10.50	31.44	218.53	7.27	3.61	266.85	105.73	36.27	11.52	115.24	(15)
2000	21.02	10.50	31.44	220.71	7.27	3.61	271.03	106.78	36.27	11.64	116.37	(15)
2001	21.23	10.37	31.44	220.07	7.29	3.61	269.41	107.65	36.27	11.47	114.65	(15)
2002	21.44	10.23	31.44	219.40	7.32	3.61	267.78	108.53	36.27	11.30	112.95	(15)
2003	21.66	10.10	31.44	218.69	7.34	3.61	266.12	110.02	36.27	11.12	111.16	(15)
2004	21.87	9.96	31.44	217.95	7.36	3.61	264.36	111.12	36.27	10.94	109.36	(15)
2005	22.09	9.83	31.44	217.17	7.38	3.61	262.60	112.33	36.27	10.75	107.49	(15)
2006	22.31	9.61	31.44	216.32	7.41	3.61	260.85	113.56	36.27	10.57	105.74	(15)
2007	22.54	9.40	31.44	215.40	7.44	3.61	259.12	114.80	36.27	10.39	104.00	(15)
2008	22.76	9.18	31.44	214.42	7.47	3.61	257.40	116.05	36.27	10.22	102.27	(15)
2009	22.99	8.97	31.44	213.39	7.50	3.61	255.69	117.30	36.27	10.05	100.54	(15)
2010	23.22	8.75	31.44	212.31	7.53	3.61	253.98	118.55	36.27	9.88	98.81	(15)
2011	23.45	8.73	31.44	211.17	7.53	3.61	252.27	119.79	36.27	9.71	97.08	(15)
2012	23.68	8.70	31.44	210.00	7.54	3.61	250.56	121.03	36.27	9.54	95.35	(15)
2013	23.92	8.66	31.44	208.79	7.54	3.61	248.85	122.27	36.27	9.37	93.62	(15)
2014	24.16	8.65	31.44	207.53	7.54	3.61	247.14	123.51	36.27	9.20	91.89	(15)
2015	24.40	8.63	31.44	210.48	7.55	3.61	245.43	124.74	36.27	9.03	90.16	(15)
2016	24.65	8.60	31.44	211.97	7.55	3.61	243.72	125.97	36.27	8.86	88.43	(15)
2017	24.90	8.58	31.44	213.47	7.56	3.61	242.01	127.20	36.27	8.69	86.70	(15)
2018	25.14	8.55	31.44	214.97	7.56	3.61	240.30	128.43	36.27	8.52	84.97	(15)
2019	25.39	8.53	31.44	216.46	7.56	3.61	238.59	129.66	36.27	8.35	83.24	(15)
2020	25.65	8.50	31.44	218.01	7.57	3.61	236.88	130.89	36.27	8.18	81.51	(15)
2021	25.91	8.50	31.44	220.19	7.57	3.61	235.17	132.12	36.27	8.01	79.78	(15)
2022	26.16	8.50	31.44	222.40	7.57	3.61	233.46	133.35	36.27	7.84	78.05	(15)
2023	26.43	8.50	31.44	224.62	7.57	3.61	231.75	134.58	36.27	7.67	76.32	(15)
2024	26.69	8.50	31.44	226.87	7.57	3.61	230.04	135.81	36.27	7.50	74.59	(15)
2025	26.96	8.50	31.44	229.13	7.57	3.61	228.33	137.04	36.27	7.33	72.86	(15)

Note 1: Average time value of foreign business passengers in 1995 is estimated as US\$20 per hour.

Note 2: Average time value of foreign business passengers is assumed to increase at 1% per annum.

Note 3: The break down of the travel time is as follows: The shortening of rail travel time up to the year 2020 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (I), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)				VIP Case (hours)			
	Waiting at Train Station	Rail Travel Hanoi - Vinh	Transfer in Vinh	Air Travel	Waiting and Waiting	Air Travel	Airport Access	Total
1995	0.50	6.00	2.00	1.00	3.00	1.00	1.00	5.00
2000	0.50	6.00	2.00	1.00	3.00	1.00	1.00	5.00
2005	0.50	5.33	2.00	1.00	3.00	1.00	1.00	5.00
2010	0.50	4.25	2.00	1.00	3.00	1.00	1.00	5.00
2020	0.50	4.00	2.00	1.00	3.00	1.00	1.00	5.00
2025	0.50	4.00	2.00	1.00	3.00	1.00	1.00	5.00

Note 4: The economic cost of rail travel is estimated as the same as the present rail rate based on the 100% cost recovery rate of VNR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic air transport is estimated as 153% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.

Note 7: The economic cost of domestic passenger service charge at the airport is estimated as US\$2.7.

Note 8: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and VIP cases.

Note 9: 10% of the benefits accruing to foreign business passengers are assumed to contribute to Vietnamese economy through reduced costs of joint ventures.

Appendix 16.2.7 Time Saving Benefit to Foreign Business Passengers on Domestic Routes

Table E Time Saving Benefit to Foreign Business Passengers on Hanoi - Nha Trang Route

Year	Time Value (US\$/hour)	Economic Cost of Travel in the WOP Case			Economic Cost of Travel in the WP Case			Benefit per Passenger (US\$)	Contribution to Vietnamese Economy (US\$)	Incremental Passengers	Total Benefit (1000 US\$)
		Time via Air (hour)	Time via Train (hour)	Time via Air and Train (hour)	Time by Direct Air Travel (hour)	Time by Air and Train (hour)	Time by Air and Train (hour)				
1995	20.00	10.75	7.27	7.27	10.00	64.08	107.44	10.74	10.85	1,180	13,120
1996	20.20	10.75	7.27	7.27	11.10	64.08	108.49	10.85	10.95	1,180	13,120
1997	20.40	10.75	7.27	7.27	12.21	64.08	110.52	11.06	11.16	1,180	13,120
1998	20.61	10.75	7.27	7.27	13.33	64.08	112.55	11.27	11.37	1,180	13,120
1999	20.81	10.75	7.27	7.27	14.47	64.08	114.57	11.47	11.57	1,180	13,120
2000	21.02	10.75	7.27	7.27	15.61	64.08	116.59	11.67	11.77	1,180	13,120
2001	21.23	10.82	7.27	7.27	16.77	64.08	118.59	11.87	11.97	1,180	13,120
2002	21.44	10.48	7.33	7.33	17.93	64.08	120.59	12.07	12.17	1,180	13,120
2003	21.66	10.35	7.34	7.34	19.11	64.08	122.59	12.27	12.37	1,180	13,120
2004	21.87	10.21	7.38	7.38	20.31	64.08	124.59	12.47	12.57	1,180	13,120
2005	22.09	10.06	7.38	7.38	21.51	64.08	126.59	12.67	12.77	1,180	13,120
2006	22.31	9.89	7.41	7.41	22.72	64.08	128.59	12.87	12.97	1,180	13,120
2007	22.54	9.65	7.44	7.44	23.93	64.08	130.59	13.07	13.17	1,180	13,120
2008	22.76	9.43	7.47	7.47	25.15	64.08	132.59	13.27	13.37	1,180	13,120
2009	22.99	9.22	7.50	7.50	26.38	64.08	134.59	13.47	13.57	1,180	13,120
2010	23.22	9.00	7.53	7.53	27.61	64.08	136.59	13.67	13.77	1,180	13,120
2011	23.45	8.80	7.55	7.55	28.84	64.08	138.59	13.87	13.97	1,180	13,120
2012	23.69	8.60	7.54	7.54	30.07	64.08	140.59	14.07	14.17	1,180	13,120
2013	23.92	8.40	7.54	7.54	31.30	64.08	142.59	14.27	14.37	1,180	13,120
2014	24.16	8.20	7.54	7.54	32.53	64.08	144.59	14.47	14.57	1,180	13,120
2015	24.40	8.06	7.55	7.55	33.76	64.08	146.59	14.67	14.77	1,180	13,120
2016	24.65	7.85	7.57	7.57	35.00	64.08	148.59	14.87	14.97	1,180	13,120
2017	24.90	7.65	7.56	7.56	36.23	64.08	150.59	15.07	15.17	1,180	13,120
2018	25.14	7.46	7.56	7.56	37.46	64.08	152.59	15.27	15.37	1,180	13,120
2019	25.39	7.28	7.56	7.56	38.69	64.08	154.59	15.47	15.57	1,180	13,120
2020	25.65	7.10	7.57	7.57	40.00	64.08	156.59	15.67	15.77	1,180	13,120
2021	25.91	6.95	7.57	7.57	41.30	64.08	158.59	15.87	15.97	1,180	13,120
2022	26.16	6.75	7.57	7.57	42.60	64.08	160.59	16.07	16.17	1,180	13,120
2023	26.43	6.55	7.57	7.57	43.90	64.08	162.59	16.27	16.37	1,180	13,120
2024	26.69	6.35	7.57	7.57	45.20	64.08	164.59	16.47	16.57	1,180	13,120
2025	26.96	6.15	7.57	7.57	46.50	64.08	166.59	16.67	16.77	1,180	13,120

Note 1: Average time value of foreign business passengers in 1995 is estimated as US\$20 per hour.

Note 2: Average time value of foreign business passengers is assumed to increase at 1% per annum.

Note 3: The break down of the travel time is as follows. The shortening of rail travel time up to the year 2020 is based on the JICA Study on the Rehabilitation and Improvement of the Railway in Vietnam, Interim Report (1), May 1995. The further shortening up to the year 2025 is projected by the JICA Study Team.

Year	WOP Case (hours)					WP Case (hours)				
	Waiting at Train Station	Rail Travel Hanoi-Vinh	Transfer in Vinh	Air Travel	Airport Access and Waiting	Waiting at Train Station	Rail Travel Hanoi-Vinh	Transfer in Vinh	Air Travel	Airport Access and Waiting
1995	0.50	6.00	2.00	1.25	1.00	0.50	6.00	2.00	1.50	1.00
2000	0.50	5.33	2.00	1.25	1.00	0.50	5.33	2.00	1.50	1.00
2010	0.50	4.23	2.00	1.25	1.00	0.50	4.23	2.00	1.50	1.00
2020	0.50	4.00	2.00	1.25	1.00	0.50	4.00	2.00	1.50	1.00
2025	0.50	4.00	2.00	1.25	1.00	0.50	4.00	2.00	1.50	1.00

Note 4: The economic cost of rail travel is estimated as the same as the present railfare based on the 100% cost recovery rate of VNCR at present.

Note 5: This cost is assumed to be increased at 2.02% for each one hour of travel time shortening based on the above-mentioned JICA Study.

Note 6: The economic cost of domestic air (passenger service charge at the airport) is estimated as 133% of the present airfare for Vietnamese in consideration of VNA's cost recovery rate of 75%.

Note 7: The economic cost of airport access/egress is estimated as VND10,000 in the both WOP and WP cases.

Note 8: 10% of the benefits attributing to foreign business passengers are assumed to contribute to Vietnamese economy through reduced costs of joint ventures.

Appendix 16.2.7 Time Saving Benefit to Foreign Business Passengers on Domestic Routes

Table F Summary: Time Saving Benefit to Foreign Business Passengers on Domestic Routes

Unit: '000 US\$

Year	Hanoi - HCMC	Hanoi - Danang	Hanoi - Hue	Hanoi - Nha Trang	Total
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006	360	130	10	6	506
2007	703	250	20	6	979
2008	1,010	378	29	5	1,422
2009	1,269	493	37	10	1,830
2010	1,531	605	44	10	2,189
2011	1,768	699	53	10	2,529
2012	1,989	902	53	15	2,959
2013	2,203	906	62	15	3,185
2014	2,091	874	53	15	3,034
2015	1,979	834	54	10	2,877
2016	1,904	836	54	10	2,884
2017	1,969	838	54	10	2,891
2018	1,984	840	54	10	2,898
2019	1,999	842	54	10	2,905
2020	2,003	844	54	10	2,911
2021	2,023	852	55	10	2,940
2022	2,043	860	55	10	2,968
2023	2,063	868	56	10	2,997
2024	2,083	877	56	11	3,027
2025	2,103	885	57	11	3,056

Appendix 16.2.8 Increased Surplus to Vietnamese Tourist Passengers on International Routes

Table A. Incremental Vietnamese Tourist Passengers on International Routes

Year	Percentage Vietnamese	Percentage Tourists	Incremental Passengers
1965	30%	52%	
1966	31%	52%	
1967	31%	52%	
1968	32%	52%	
1969	32%	52%	
1970	33%	52%	
1971	33%	52%	
1972	34%	52%	
1973	34%	52%	
1974	35%	52%	
1975	35%	52%	
1976	36%	52%	39,000
1977	36%	52%	83,000
1978	37%	52%	132,000
1979	37%	52%	189,000
1980	38%	52%	252,000
1981	38%	52%	310,000
1982	39%	52%	374,000
1983	39%	52%	446,000
1984	40%	52%	451,000
1985	40%	52%	457,000
1986	40%	52%	457,000
1987	40%	52%	457,000
1988	40%	52%	457,000
1989	40%	52%	457,000
1990	40%	52%	457,000
1991	40%	52%	457,000
1992	40%	52%	457,000
1993	40%	52%	457,000
1994	40%	52%	457,000
1995	40%	52%	457,000
1996	40%	52%	457,000
1997	40%	52%	457,000
1998	40%	52%	457,000
1999	40%	52%	457,000
2000	40%	52%	457,000
2001	40%	52%	457,000
2002	40%	52%	457,000
2003	40%	52%	457,000
2004	40%	52%	457,000
2005	40%	52%	457,000
2006	40%	52%	457,000
2007	40%	52%	457,000
2008	40%	52%	457,000
2009	40%	52%	457,000
2010	40%	52%	457,000
2011	40%	52%	457,000
2012	40%	52%	457,000
2013	40%	52%	457,000
2014	40%	52%	457,000
2015	40%	52%	457,000
2016	40%	52%	457,000
2017	40%	52%	457,000
2018	40%	52%	457,000
2019	40%	52%	457,000
2020	40%	52%	457,000
2021	40%	52%	457,000
2022	40%	52%	457,000
2023	40%	52%	457,000
2024	40%	52%	457,000
2025	40%	52%	457,000

Note 1: The percentage of Vietnamese is forecasted to increase from the present 30% to 40% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of tourist passengers within Vietnamese passengers on international routes is assumed to remain at 52% based on the traffic survey conducted at Noi Bai Airport in May 1996 by the JICA Study Team.

Table B. Increased Surplus to Vietnamese Tourist Passengers on International Routes

Year	Weighted Average Airfare (US\$)	Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit (000 US\$)
	(1)	(2)	(3)	(4)=(2)x(3)
1965	269.04	134.52		
1966	269.04	134.52		
1967	269.04	134.52		
1968	269.04	134.52		
1969	269.04	134.52		
1970	269.04	134.52		
1971	269.04	134.52		
1972	269.04	134.52		
1973	269.04	134.52		
1974	269.04	134.52		
1975	269.04	134.52		
1976	269.04	134.52	39,000	5,246
1977	269.04	134.52	83,000	11,165
1978	269.04	134.52	132,000	17,757
1979	269.04	134.52	189,000	25,425
1980	269.04	134.52	252,000	33,899
1981	269.04	134.52	310,000	41,702
1982	269.04	134.52	374,000	50,311
1983	269.04	134.52	446,000	59,997
1984	269.04	134.52	451,000	60,569
1985	269.04	134.52	457,000	61,476
1986	269.04	134.52	457,000	61,476
1987	269.04	134.52	457,000	61,476
1988	269.04	134.52	457,000	61,476
1989	269.04	134.52	457,000	61,476
1990	269.04	134.52	457,000	61,476
1991	269.04	134.52	457,000	61,476
1992	269.04	134.52	457,000	61,476
1993	269.04	134.52	457,000	61,476
1994	269.04	134.52	457,000	61,476
1995	269.04	134.52	457,000	61,476
1996	269.04	134.52	457,000	61,476
1997	269.04	134.52	457,000	61,476
1998	269.04	134.52	457,000	61,476
1999	269.04	134.52	457,000	61,476
2000	269.04	134.52	457,000	61,476
2001	269.04	134.52	457,000	61,476
2002	269.04	134.52	457,000	61,476
2003	269.04	134.52	457,000	61,476
2004	269.04	134.52	457,000	61,476
2005	269.04	134.52	457,000	61,476
2006	269.04	134.52	457,000	61,476
2007	269.04	134.52	457,000	61,476
2008	269.04	134.52	457,000	61,476
2009	269.04	134.52	457,000	61,476
2010	269.04	134.52	457,000	61,476
2011	269.04	134.52	457,000	61,476
2012	269.04	134.52	457,000	61,476
2013	269.04	134.52	457,000	61,476
2014	269.04	134.52	457,000	61,476
2015	269.04	134.52	457,000	61,476
2016	269.04	134.52	457,000	61,476
2017	269.04	134.52	457,000	61,476
2018	269.04	134.52	457,000	61,476
2019	269.04	134.52	457,000	61,476
2020	269.04	134.52	457,000	61,476
2021	269.04	134.52	457,000	61,476
2022	269.04	134.52	457,000	61,476
2023	269.04	134.52	457,000	61,476
2024	269.04	134.52	457,000	61,476
2025	269.04	134.52	457,000	61,476

Note 1: Average airfare is estimated based on the present airfare on each route weighted by the number of passengers in 1994. Passenger service charge at the airport of US\$6 and access/ground cost of VND10,000 are added to the average airfare. These represent minimum willingness to pay, thus have to be evaluated at financial prices, but not at economic prices.

Note 2: The consumer surplus is calculated by assuming a straight demand curve with a price axis intercept (demand=0) being the current airfare. Therefore, benefit per passenger is 50% of the weighted airfare.

Table A. Incremental Foreign Tourist Passengers on International Routes

Year	Percentage Foreigner	Percentage Tourists	Incremental Passengers
1995	70%	53%	
1996	70%	53%	
1997	69%	53%	
1998	69%	53%	
1999	69%	53%	
2000	68%	53%	
2001	67%	53%	
2002	67%	53%	
2003	66%	53%	
2004	66%	53%	
2005	65%	53%	
2006	65%	53%	72,000
2007	64%	53%	150,000
2008	64%	53%	235,000
2009	63%	53%	327,000
2010	63%	53%	427,000
2011	62%	53%	516,000
2012	62%	53%	610,000
2013	61%	53%	710,000
2014	61%	53%	704,000
2015	60%	53%	698,000
2016	60%	53%	699,000
2017	60%	53%	699,000
2018	60%	53%	699,000
2019	60%	53%	699,000
2020	60%	53%	699,000
2021	60%	53%	699,000
2022	60%	53%	699,000
2023	60%	53%	699,000
2024	60%	53%	699,000
2025	60%	53%	699,000

Note 1: The percentage of foreigner is forecasted to decrease from the present 70% to 60% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of tourists passengers within foreign passengers on international routes is assumed to remain at 53% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Table B. Increased Receipts from Foreign Tourist Passengers on International Routes

Year	(1)	(2)	(3)	Incremental Passengers	Total Benefit (000 US\$)
	Incremental Receipt per Passengers (US\$)	Benefit per Passenger (US\$)	Contribution of Airport (US\$)		
1995	140.00	28.00	14.00		
1996	145.50	29.10	14.55		
1997	151.00	30.20	15.10		
1998	156.50	31.30	15.65		
1999	162.00	32.40	16.20		
2000	167.50	33.50	16.75		
2001	173.00	34.60	17.30		
2002	178.50	35.70	17.85		
2003	184.00	36.80	18.40		
2004	189.50	37.90	18.95		
2005	195.00	39.00	19.50		
2006	200.50	40.10	20.05	72,000	1,444
2007	206.00	41.20	20.60	150,000	3,090
2008	211.50	42.30	21.15	235,000	4,970
2009	217.00	43.40	21.70	327,000	7,096
2010	222.50	44.50	22.25	427,000	9,501
2011	228.00	45.60	22.80	516,000	11,765
2012	233.50	46.70	23.35	610,000	14,244
2013	239.00	47.80	23.90	710,000	16,969
2014	244.50	48.90	24.45	704,000	17,213
2015	250.00	50.00	25.00	699,000	17,475
2016	250.00	50.00	25.00	699,000	17,475
2017	250.00	50.00	25.00	699,000	17,475
2018	250.00	50.00	25.00	699,000	17,475
2019	250.00	50.00	25.00	699,000	17,475
2020	250.00	50.00	25.00	699,000	17,475
2021	250.00	50.00	25.00	699,000	17,475
2022	250.00	50.00	25.00	699,000	17,475
2023	250.00	50.00	25.00	699,000	17,475
2024	250.00	50.00	25.00	699,000	17,475
2025	250.00	50.00	25.00	699,000	17,475

Note 1: Tourism receipt per visitor of \$280 (according to VINA Tourism) is assumed to increase to US\$500 in 2015, similar levels of Thailand and Indonesia at present. It is then assumed to remain at the same level after the year 2015. Tourism receipt per passenger is 50% of that per visitor, since airport statistics count both departing and arriving passengers.

Note 2: The benefit per passenger is 20% of the incremental receipts based on the rate of operating surplus of the tourism industries in Southeast Asia. Of which, 50% is assumed to be contributed by the airport capacity expansion.



Appendix 16.2.10 Increased Surplus to Vietnamese Tourist Passengers on Domestic Routes

Table A. Incremental Vietnamese Tourist Passengers on Domestic Routes

Year	Percentage Vietnamese	Percentage Tourists	Hanoi - HCMC	Hanoi - Danang	Hanoi - Hue	Hanoi - Nha Trang	Hanoi - Others	Total
1965	58%	39%						
1966	59%	39%						
1967	60%	39%						
1968	61%	39%						
1969	62%	39%						
2000	64%	39%						
2001	65%	39%						
2002	66%	39%						
2003	67%	39%						
2004	68%	39%						
2005	69%	39%						
2006	70%	39%	58,000	20,000	2,000	1,000	1,000	81,000
2007	71%	39%	122,000	49,000	4,000	2,000	2,000	172,000
2008	72%	39%	193,000	70,000	6,000	2,000	3,000	274,000
2009	73%	39%	272,000	102,000	8,000	3,000	3,000	388,000
2010	75%	39%	358,000	138,000	10,000	4,000	4,000	515,000
2011	76%	39%	435,000	171,000	12,000	5,000	5,000	628,000
2012	77%	39%	519,000	207,000	14,000	6,000	6,000	752,000
2013	78%	39%	611,000	247,000	16,000	7,000	7,000	887,000
2014	79%	39%	617,000	254,000	16,000	6,000	7,000	900,000
2015	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2016	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2017	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2018	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2019	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2020	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2021	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2022	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2023	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2024	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000
2025	80%	39%	623,000	260,000	16,000	6,000	7,000	912,000

Note 1: The percentage of Vietnamese is forecasted to increase from the present 58% to 80% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of tourist passengers within Vietnamese passengers on domestic routes is assumed to remain at 39% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Appendix 16.2.10 Increased Surplus to Vietnamese Tourist Passengers on Domestic Routes

Table B. Benefit to Vietnamese Tourist Passengers on Hanoi - Ho Chi Minh Route

Year	Air Travel Cost (US\$)	Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit (000 US\$)
	(1)	(2)		
1995	65.91	32.95		
1996	65.91	32.95		
1997	65.91	32.95		
1998	65.91	32.95		
1999	65.91	32.95		
2000	65.91	32.95		
2001	65.91	32.95		
2002	65.91	32.95		
2003	65.91	32.95		
2004	65.91	32.95		
2005	65.91	32.95		
2006	65.91	32.95	58,000	1,911
2007	65.91	32.95	122,000	4,020
2008	65.91	32.95	193,000	6,360
2009	65.91	32.95	272,000	8,964
2010	65.91	32.95	358,000	11,798
2011	65.91	32.95	435,000	14,335
2012	65.91	32.95	519,000	17,103
2013	65.91	32.95	611,000	20,135
2014	65.91	32.95	617,000	20,333
2015	65.91	32.95	623,000	20,531
2016	65.91	32.95	623,000	20,531
2017	65.91	32.95	623,000	20,531
2018	65.91	32.95	623,000	20,531
2019	65.91	32.95	623,000	20,531
2020	65.91	32.95	623,000	20,531
2021	65.91	32.95	623,000	20,531
2022	65.91	32.95	623,000	20,531
2023	65.91	32.95	623,000	20,531
2024	65.91	32.95	623,000	20,531
2025	65.91	32.95	623,000	20,531

Note: Air travel cost includes airfare (VND700,000), airport PSC (VND15,000) and access/egress cost (VND10,000). These represent minimum willingness to pay, thus have to be evaluated at financial prices, but not at economic prices.

Table C. Benefit to Vietnamese Tourist Passengers on Hanoi - Danang Route

Year	Air Travel Cost (US\$)	Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit (000 US\$)
	(1)	(2)		
1995	33.18	16.59		
1996	33.18	16.59		
1997	33.18	16.59		
1998	33.18	16.59		
1999	33.18	16.59		
2000	33.18	16.59		
2001	33.18	16.59		
2002	33.18	16.59		
2003	33.18	16.59		
2004	33.18	16.59		
2005	33.18	16.59		
2006	33.18	16.59	20,000	332
2007	33.18	16.59	43,000	713
2008	33.18	16.59	70,000	1,161
2009	33.18	16.59	102,000	1,692
2010	33.18	16.59	138,000	2,290
2011	33.18	16.59	171,000	2,837
2012	33.18	16.59	207,000	3,434
2013	33.18	16.59	247,000	4,098
2014	33.18	16.59	254,000	4,214
2015	33.18	16.59	260,000	4,314
2016	33.18	16.59	260,000	4,314
2017	33.18	16.59	260,000	4,314
2018	33.18	16.59	260,000	4,314
2019	33.18	16.59	260,000	4,314
2020	33.18	16.59	260,000	4,314
2021	33.18	16.59	260,000	4,314
2022	33.18	16.59	260,000	4,314
2023	33.18	16.59	260,000	4,314
2024	33.18	16.59	260,000	4,314
2025	33.18	16.59	260,000	4,314

Note: Air travel cost includes airfare (VND340,000), airport PSC (VND15,000) and access/egress cost (VND10,000). These represent minimum willingness to pay, thus have to be evaluated at financial prices, but not at economic prices.

Appendix 16.2.10 Increased Surplus to Vietnamese Tourist Passengers on Domestic Routes

Table D Benefit to Vietnamese Tourist Passengers on Hanoi - Hue Route

Year	Air Travel Cost (US\$)	Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit ('000 US\$)
	(1)	(2)		
1995	29.55	14.77		
1996	29.55	14.77		
1997	29.55	14.77		
1998	29.55	14.77		
1999	29.55	14.77		
2000	29.55	14.77		
2001	29.55	14.77		
2002	29.55	14.77		
2003	29.55	14.77		
2004	29.55	14.77		
2005	29.55	14.77		
2006	29.55	14.77	2,000	30
2007	29.55	14.77	4,000	59
2008	29.55	14.77	6,000	89
2009	29.55	14.77	8,000	118
2010	29.55	14.77	10,000	148
2011	29.55	14.77	12,000	177
2012	29.55	14.77	14,000	207
2013	29.55	14.77	16,000	236
2014	29.55	14.77	16,000	236
2015	29.55	14.77	16,000	236
2016	29.55	14.77	16,000	236
2017	29.55	14.77	16,000	236
2018	29.55	14.77	16,000	236
2019	29.55	14.77	16,000	236
2020	29.55	14.77	16,000	236
2021	29.55	14.77	16,000	236
2022	29.55	14.77	16,000	236
2023	29.55	14.77	16,000	236
2024	29.55	14.77	16,000	236
2025	29.55	14.77	16,000	236

Note: Air travel cost includes airfare (VND300,000), airport PSC (VND15,000) and access/egress cost (VND10,000). These represent minimum willingness to pay, thus have to be evaluated at financial prices, but not at economic prices.

Table E Benefit to Vietnamese Tourist Passengers on Hanoi - Nha Trang Route

Year	Air Travel Cost (US\$)	Benefit per Passenger (US\$)	Incremental Passengers	Total Benefit ('000 US\$)
	(1)	(2)		
1995	50.45	25.23		
1996	50.45	25.23		
1997	50.45	25.23		
1998	50.45	25.23		
1999	50.45	25.23		
2000	50.45	25.23		
2001	50.45	25.23		
2002	50.45	25.23		
2003	50.45	25.23		
2004	50.45	25.23		
2005	50.45	25.23		
2006	50.45	25.23	1,000	25
2007	50.45	25.23	2,000	50
2008	50.45	25.23	2,000	50
2009	50.45	25.23	3,000	76
2010	50.45	25.23	4,000	101
2011	50.45	25.23	5,000	126
2012	50.45	25.23	6,000	151
2013	50.45	25.23	7,000	177
2014	50.45	25.23	6,000	151
2015	50.45	25.23	6,000	151
2016	50.45	25.23	6,000	151
2017	50.45	25.23	6,000	151
2018	50.45	25.23	6,000	151
2019	50.45	25.23	6,000	151
2020	50.45	25.23	6,000	151
2021	50.45	25.23	6,000	151
2022	50.45	25.23	6,000	151
2023	50.45	25.23	6,000	151
2024	50.45	25.23	6,000	151
2025	50.45	25.23	6,000	151

Note: Air travel cost includes airfare (VND530,000), airport PSC (VND15,000) and access/egress cost (VND10,000). These represent minimum willingness to pay, thus have to be evaluated at financial prices, but not at economic prices.

Appendix 16.2.10 Increased Surplus to Vietnamese Tourist Passengers on Domestic Routes

Table F Summary: Benefit to Increased Vietnamese Tourist Passengers on Domestic Routes

Unit: '000 US\$

Year	Hanoi - HCMC	Hanoi - Danang	Hanoi - Hue	Hanoi - Nha Trang	Total
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006	1,911	332	30	25	2,298
2007	4,020	713	59	50	4,843
2008	6,360	1,161	89	50	7,661
2009	8,964	1,692	118	76	10,850
2010	11,798	2,290	148	101	14,336
2011	14,335	2,837	177	126	17,476
2012	17,103	3,434	207	151	20,896
2013	20,135	4,096	236	177	24,646
2014	20,333	4,214	236	151	24,935
2015	20,531	4,314	236	151	25,232
2016	20,531	4,314	236	151	25,232
2017	20,531	4,314	236	151	25,232
2018	20,531	4,314	236	151	25,232
2019	20,531	4,314	236	151	25,232
2020	20,531	4,314	236	151	25,232
2021	20,531	4,314	236	151	25,232
2022	20,531	4,314	236	151	25,232
2023	20,531	4,314	236	151	25,232
2024	20,531	4,314	236	151	25,232
2025	20,531	4,314	236	151	25,232

Appendix 16.2.11 Increased Receipts from Foreign Tourist Passengers on Domestic Routes

Table B. Increased Receipts from Foreign Tourist Passengers on Domestic Routes

Year	Incremental Receipt per Passengers (US\$)	Benefit per Passenger (US\$)	Contribution of Airport (US\$)	Incremental Passengers	Total Benefit (000 US\$)
1995	35.00	7.00	3.50		
1996	36.38	7.28	3.64		
1997	37.75	7.55	3.78		
1998	39.13	7.83	3.91		
1999	40.50	8.10	4.05		
2000	41.88	8.38	4.19		
2001	43.25	8.65	4.33		
2002	44.63	8.93	4.46		
2003	46.00	9.20	4.60		
2004	47.38	9.48	4.74		
2005	48.75	9.75	4.88		
2006	50.13	10.03	5.01	37,000	185
2007	51.50	10.30	5.15	73,000	376
2008	52.88	10.58	5.29	111,000	587
2009	54.25	10.85	5.43	148,000	803
2010	55.63	11.13	5.56	185,000	1,029
2011	57.00	11.40	5.70	213,000	1,214
2012	58.38	11.68	5.84	240,000	1,401
2013	59.75	11.95	5.98	266,000	1,589
2014	61.13	12.23	6.11	253,000	1,546
2015	62.50	12.50	6.25	240,000	1,500
2016	62.50	12.50	6.25	240,000	1,500
2017	62.50	12.50	6.25	240,000	1,500
2018	62.50	12.50	6.25	240,000	1,500
2019	62.50	12.50	6.25	240,000	1,500
2020	62.50	12.50	6.25	240,000	1,500
2021	62.50	12.50	6.25	240,000	1,500
2022	62.50	12.50	6.25	240,000	1,500
2023	62.50	12.50	6.25	240,000	1,500
2024	62.50	12.50	6.25	240,000	1,500
2025	62.50	12.50	6.25	240,000	1,500

Note 1: Tourism receipt per visitor of \$280 (according to VINA Tourism) is assumed to increase to US\$500 in 2015, similar levels of Thailand and Indonesia at present. It is then assumed to remain at the same level after the year 2015. Tourism receipt per passenger is 50% of that per visitor.

Note 2: In the WCP case, it is assumed that the average length of stay of the visitor will be shortened to 3 days from the present 4 days. Therefore, tourism receipt per passenger will increase from \$US35 in 1995 to \$62.5 in 2015. The benefit per passenger is 20% of the incremental receipt based on the rate of operating surplus of the tourism industries in Southeast Asia. Of which, 50% is assumed to be contributed by the airport capacity expansion.

Note 3: The percentage of foreigner is forecasted to decrease from the present 42% to 20% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 4: The percentage of tourists passengers within foreign passengers on domestic routes is assumed to remain at 41% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Table A. Incremental Foreign Tourist Passengers on Domestic Routes

Year	Percentage Foreigner	Percentage Tourists	Incremental Passengers
1995	42%	41%	
1996	41%	41%	
1997	40%	41%	
1998	39%	41%	
1999	38%	41%	
2000	37%	41%	
2001	35%	41%	
2002	34%	41%	
2003	33%	41%	
2004	32%	41%	
2005	31%	41%	
2006	30%	41%	37,000
2007	29%	41%	73,000
2008	28%	41%	111,000
2009	27%	41%	148,000
2010	26%	41%	185,000
2011	24%	41%	213,000
2012	23%	41%	240,000
2013	22%	41%	266,000
2014	21%	41%	253,000
2015	20%	41%	240,000
2016	20%	41%	240,000
2017	20%	41%	240,000
2018	20%	41%	240,000
2019	20%	41%	240,000
2020	20%	41%	240,000
2021	20%	41%	240,000
2022	20%	41%	240,000
2023	20%	41%	240,000
2024	20%	41%	240,000
2025	20%	41%	240,000

Note 1: The percentage of foreigner is forecasted to decrease from the present 42% to 20% by the year 2015 in the course of economic development as experienced in other developing countries in Asia. This rate is assumed to be maintained after the year 2015.

Note 2: The percentage of tourists passengers within foreign passengers on domestic routes is assumed to remain at 41% based on the traffic survey conducted at Noi Bai Airport in May 1995 by the JICA Study Team.

Appendix 16.2.12 Benefit from Increased International Cargo

Year	Incremental Cargo (ton)	Weighted Cargo Airfare (US\$/kg)	Benefit per Ton (US\$/kg)	Contribution to VN Economy (US\$/kg)	Total Benefit (000 US\$)
	(1)	(2)	(3)	(4)	(5) = (3)x(4)
1995		2.84	1.42	0.71	
1996		2.84	1.42	0.71	
1997		2.84	1.42	0.71	
1998		2.84	1.42	0.71	
1999		2.84	1.42	0.71	
2000		2.84	1.42	0.71	
2001		2.84	1.42	0.71	
2002		2.84	1.42	0.71	
2003		2.84	1.42	0.71	
2004		2.84	1.42	0.71	
2005		2.84	1.42	0.71	
2006	6,400	2.84	1.42	0.71	4,545
2007	13,700	2.84	1.42	0.71	9,729
2008	21,900	2.84	1.42	0.71	15,551
2009	31,300	2.84	1.42	0.71	22,226
2010	42,200	2.84	1.42	0.71	29,967
2011	52,500	2.84	1.42	0.71	37,281
2012	63,900	2.84	1.42	0.71	45,376
2013	76,800	2.84	1.42	0.71	54,536
2014	76,800	2.84	1.42	0.71	54,536
2015	76,800	2.84	1.42	0.71	54,536
2016	76,800	2.84	1.42	0.71	54,536
2017	76,800	2.84	1.42	0.71	54,536
2018	76,800	2.84	1.42	0.71	54,536
2019	76,800	2.84	1.42	0.71	54,536
2020	76,800	2.84	1.42	0.71	54,536
2021	76,800	2.84	1.42	0.71	54,536
2022	76,800	2.84	1.42	0.71	54,536
2023	76,800	2.84	1.42	0.71	54,536
2024	76,800	2.84	1.42	0.71	54,536
2025	76,800	2.84	1.42	0.71	54,536

Note 1: Average airfare is estimated based on the present airfare on each route weighted by the volume of cargo in 1994. The cargo airfare can be approximated as 0.5% of one-way economy passenger airfare per ton of cargo.

Note 2: The benefit is calculated, in the similar manner to the estimation of consumer's surplus, by assuming a straight demand curve with a price axis intercept (demand=0) being the twice the current airfare. Therefore, benefit per ton of cargo is 50% of the weighted airfare.

Note 3: The benefit of international trade is assumed to be equally shared with the trade partner. The contribution of generated benefits to Vietnamese economy is therefore 50%.

Appendix 16.2.13 Benefit from Increased Domestic Cargo

Year	Incremental Cargo (ton) (1)	Weighted Cargo Airfare (\$US/kg) (2)	Benefit per Ton (\$US/kg) (3)	Total Benefit ('000 \$US) (4)=(2)x(3)
1995		0.31	0.15	
1996		0.31	0.15	
1997		0.31	0.15	
1998		0.31	0.15	
1999		0.31	0.15	
2000		0.31	0.15	
2001		0.31	0.15	
2002		0.31	0.15	
2003		0.31	0.15	
2004		0.31	0.15	
2005		0.31	0.15	
2006	7,100	0.31	0.15	1,092
2007	15,000	0.31	0.15	2,307
2008	23,600	0.31	0.15	3,629
2009	33,000	0.31	0.15	5,075
2010	43,500	0.31	0.15	6,630
2011	52,900	0.31	0.15	8,135
2012	63,100	0.31	0.15	9,704
2013	74,000	0.31	0.15	11,380
2014	74,000	0.31	0.15	11,380
2015	74,000	0.31	0.15	11,380
2016	74,000	0.31	0.15	11,380
2017	74,000	0.31	0.15	11,380
2018	74,000	0.31	0.15	11,380
2019	74,000	0.31	0.15	11,380
2020	74,000	0.31	0.15	11,380
2021	74,000	0.31	0.15	11,380
2022	74,000	0.31	0.15	11,380
2023	74,000	0.31	0.15	11,380
2024	74,000	0.31	0.15	11,380
2025	74,000	0.31	0.15	11,380

Note 1: Average airfare is estimated based on the present airfare on each route weighted by the volume of cargo in 1994.

The cargo airfare can be approximated as 0.5% of one-way economy passenger airfare per ton of cargo.

Note 2: The benefit is calculated, in the similar manner to the estimation of consumer's surplus, by assuming a straight demand curve with a price axis intercept (demand=0) being the twice the current airfare. Therefore, benefit per ton of cargo is 50% of the weighted airfare.

Year	Costs						Benefits										Net Benefits	
	(1)	(2)	(3)	(4)	(5)	(6)=(1)-(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)		(17)=(1)-(16)
	Const- ruction Cost	Increased Mainte- nance Cost	Increased Personnel, Overhead and Other Cost	Increased Utility Cost	Environ- mental Mitigation Cost	Total Cost	Time Savings by Vietnamese Business Passengers (International)	Time Savings by Foreign Business Passengers (International)	Time Savings by Vietnamese Business Passengers (Domestic)	Time Savings by Foreign Business Passengers (Domestic)	Increased Surplus to Vietnamese Tourist Pax (International)	Increased Surplus to Vietnamese Tourist Pax (Domestic)	Increased Receipts from Foreign Tourist Pax (Domestic)	Benefits from Increased International Cargo	Benefits from Increased Domestic Cargo	Total Benefits	Net Benefits	
1995			0			0												
1996			0			0												
1997			0			0												
1998			0			0												
1999			0			0												
2000	1,426		0			1,426												-1,426
2001	13,278		0			13,278												-13,278
2002	22,644		0			22,644												-22,644
2003	5,474		0			5,474												-5,474
2004	15,345		0			15,345												-15,345
2005	75,008		0			75,008												-75,008
2006	111,777		0			111,777												-111,777
2007	132,588		0			132,588												-132,588
2008	62,631		0			62,631												-62,631
2009	375	5,255	221	433	233	6,284	3,566	1,124	3,285	4,977	1,989	2,710	201	4,048	1,200	22,953	16,668	
2010		5,255	408	433	233	6,086	6,930	2,068	6,329	9,551	2,622	5,165	397	7,953	2,261	44,112	38,016	
2011		5,255	550	433	233	6,239	10,147	2,965	9,325	13,990	3,922	7,432	519	11,646	3,276	64,285	58,046	
2012		5,255	706	433	233	6,395	13,729	3,904	12,693	18,698	5,300	9,945	665	15,764	4,369	86,419	80,024	
2013		5,255	875	433	233	6,563	17,696	4,906	16,569	23,945	6,788	12,649	819	20,451	5,552	110,967	104,423	
2014		5,255	1,058	433	233	6,746	22,029	5,972	20,853	29,729	8,435	15,307	966	25,493	6,813	137,790	131,044	
2015		5,255	1,257	433	233	6,945	26,877	7,100	25,660	35,917	10,225	18,813	1,113	31,103	9,182	167,124	160,179	
2016		5,255	1,469	433	233	7,196	31,454	8,274	30,251	41,836	11,875	21,764	1,294	36,074	9,612	194,920	187,762	
2017		5,255	1,699	433	233	7,367	36,435	9,511	35,205	48,024	13,650	24,937	1,491	41,470	11,150	224,721	217,354	
2018		5,255	1,861	433	233	7,560	40,941	10,636	39,741	53,540	15,225	27,697	1,644	46,512	12,518	251,637	244,088	
2019		5,255	1,947	433	233	7,635	41,263	10,660	40,427	53,540	15,225	27,697	1,644	46,512	12,518	252,677	245,042	
2020		5,255	2,036	433	233	7,724	41,998	10,685	41,136	53,540	15,225	27,697	1,644	46,512	12,518	253,752	246,028	
2021		5,255	2,128	433	233	7,817	41,998	10,744	42,026	53,540	15,225	27,697	1,644	46,512	12,518	255,132	247,316	
2022		5,255	2,224	433	233	7,913	42,417	10,803	42,955	53,540	15,225	27,697	1,644	46,512	12,518	256,571	248,659	
2023		5,255	2,324	433	233	8,012	42,854	10,863	43,927	53,540	15,225	27,697	1,644	46,512	12,518	258,072	250,060	
2024		5,255	2,427	433	233	8,116	43,311	10,924	44,942	53,540	15,225	27,697	1,644	46,512	12,518	259,637	251,521	
2025		5,255	2,538	433	233	8,226	43,788	10,985	46,002	53,540	15,225	27,697	1,644	46,512	12,518	261,269	253,043	
2026		5,255	2,652	433	233	8,340	44,287	11,047	47,111	53,540	15,225	27,697	1,644	46,512	12,518	262,941	254,601	
2027		5,255	2,773	433	233	8,461	44,809	11,109	48,269	53,540	15,225	27,697	1,644	46,512	12,518	264,716	256,255	
2028	-84,171	5,255	2,897	433	233	-75,566	45,354	11,172	49,480	53,540	15,225	27,697	1,644	46,512	12,518	266,568	342,154	

EIRR  
NPV (at 12% discount rate)

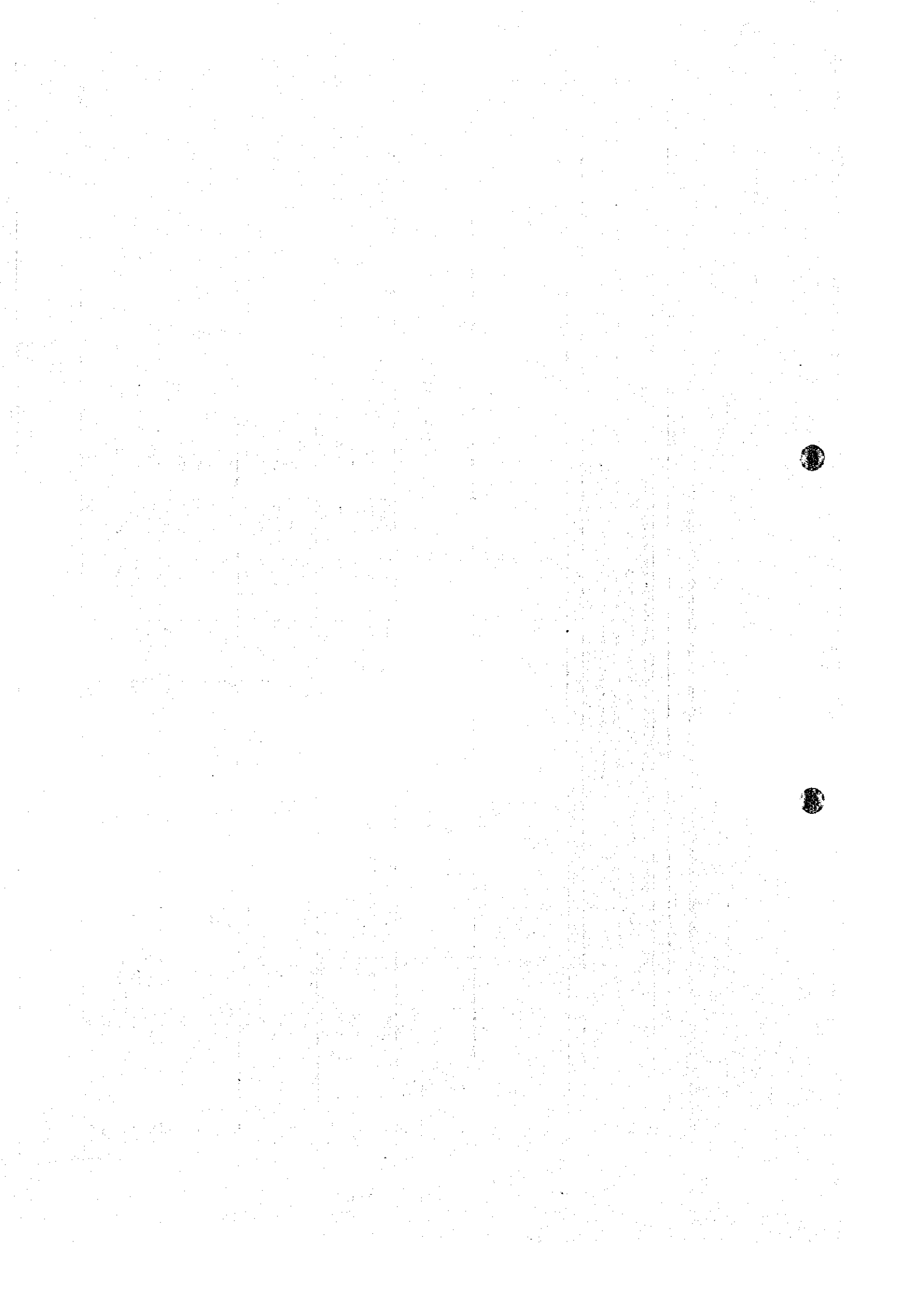
17.0%  
74,663



Appendix 16.2.16 Comparison of Economic Costs and Benefits - Medium-term Development Plan - Construction Cost up by 20%

Unit: '000 US\$ at 1995 Prices

Year	Costs					Benefits										Net Benefits	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)		(16)
1995			0			0											
1996			0			0											-1,711
1997	1,711		0			1,711											-15,934
1998	15,934		0			15,934											-27,172
1999	27,172		0			27,172											-6,568
2000	6,568		0			6,568											-18,414
2001	18,414		0			18,414											-60,010
2002	90,010		0			90,010											-134,133
2003	134,133		0			134,133											-159,106
2004	159,106		0			159,106											-75,157
2005	75,157		0			75,157											16,756
2006	450	5,255	157	433	233	6,527	3,819	1,334	2,815	506	5,246	1,444	2,298	195	4,545	1,062	23,264
2007		5,255	333	433	233	6,254	8,091	2,723	6,054	979	11,165	3,090	4,943	376	9,729	2,307	49,357
2008		5,255	531	433	233	6,452	13,032	4,181	9,748	1,422	17,757	4,970	7,661	587	15,551	3,629	78,540
2009		5,255	753	433	233	6,574	18,644	5,719	13,943	1,830	25,425	7,096	10,650	803	22,226	5,075	111,610
2010		5,255	1,066	433	233	6,967	24,926	7,326	18,636	2,189	33,839	9,501	14,336	1,029	29,967	6,680	148,500
2011		5,255	1,334	433	233	7,022	30,986	8,855	23,312	2,529	41,702	11,765	17,476	1,214	37,281	8,135	183,255
2012		5,255	1,627	433	233	7,315	37,812	10,508	28,558	2,859	50,311	14,244	20,696	1,401	45,376	9,704	221,668
2013		5,255	1,949	433	233	7,638	45,321	12,266	34,441	3,195	59,997	16,969	24,646	1,589	54,536	11,380	264,332
2014		5,255	2,055	433	233	7,743	46,414	12,197	35,820	3,034	60,669	17,213	24,935	1,546	54,536	11,380	267,744
2015		5,255	2,164	433	233	7,852	47,427	12,128	37,170	2,877	61,476	17,475	25,232	1,500	54,536	11,380	271,201
2016		5,255	2,273	433	233	7,961	47,866	12,156	37,921	2,894	61,476	17,475	25,232	1,500	54,536	11,380	272,427
2017		5,255	2,386	433	233	8,074	48,324	12,184	38,703	2,891	61,476	17,475	25,232	1,500	54,536	11,380	273,702
2018		5,255	2,508	433	233	8,196	48,801	12,212	39,516	2,898	61,476	17,475	25,232	1,500	54,536	11,380	275,028
2019		5,255	2,633	433	233	8,321	49,299	12,240	40,363	2,905	61,476	17,475	25,232	1,500	54,536	11,380	276,407
2020		5,255	2,766	433	233	8,455	49,818	12,268	41,244	2,911	61,476	17,475	25,232	1,500	54,536	11,380	277,841
2021		5,255	2,904	433	233	8,592	50,434	12,335	42,332	2,940	61,476	17,475	25,232	1,500	54,536	11,380	279,641
2022		5,255	3,050	433	233	8,738	51,081	12,403	43,475	2,968	61,476	17,475	25,232	1,500	54,536	11,380	281,528
2023		5,255	3,203	433	233	8,891	51,760	12,472	44,675	2,997	61,476	17,475	25,232	1,500	54,536	11,380	283,505
2024		5,255	3,365	433	233	9,053	52,473	12,542	45,935	3,027	61,476	17,475	25,232	1,500	54,536	11,380	285,577
2025	-101,016	5,255	3,535	433	233	-91,793	53,222	12,612	47,258	3,056	61,475	17,475	25,232	1,500	54,536	11,380	287,749
EIRR																	17.6%
NPV (at 12% discount rate)																	153,776



JICA