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7.1-1

1965 75
 . 1,000
 1974 ,
 1981 1 . 1990
 5 5 1994
 10 10
 가 2001
 17 , 1965
 75 2,277 가
 가 가
 가 가
 1965 가 25.
 4% . 가 1960 54.
 5% 가 , 70 32.
 7%, 80 21.7%, 90 12.9%
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 60 가 가 ,
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 가 60
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 1988 1997
 88 ,
 가 , 90
 IMF

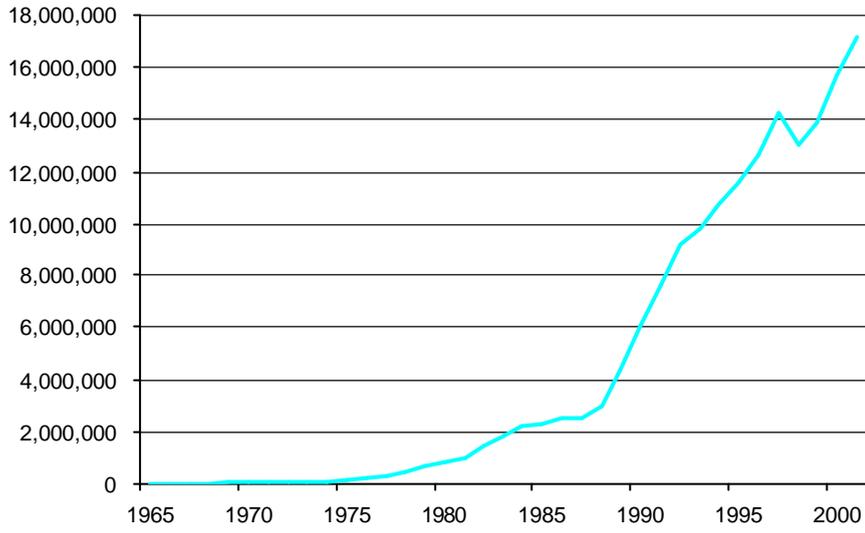
1957	NA	811	839
1958	NA	1,177	1,079
1959	NA	1,759	1,501
1960	NA	1,858	1,773
1961	NA	2,405	2,236
1962	NA	3,429	3,137
1963	NA	4,344	3,582
1964	NA	4,899	4,548
1965	7,525	6,725	5,840
1966	13,546	10,545	10,275
1967	17,863	14,262	14,172
1968	29,368	22,909	22,662
1969	41,593	35,105	34,632
1970	49,426	44,257	44,038
1971	67,122	55,165	54,745
1972	73,243	58,580	56,898
1973	80,869	79,220	72,681
1974	102,274	100,600	91,569
1975	167,580	163,105	151,898
1976	220,391	216,740	185,203
1977	331,160	319,236	272,759
1978	463,222	450,622	386,481
1979	651,101	581,230	514,254
1980	805,369	722,175	672,890
1981	1,003,204	877,532	774,604
1982	1,444,353	1,262,305	1,024,917
1983	1,795,265	1,646,732	1,322,095
1984	2,174,309	1,690,554	1,483,364
1985	2,319,004	1,853,823	1,705,749
1986	2,513,917	2,200,855	1,925,924
1987	2,483,928	2,443,714	1,940,853
1988	3,009,636	3,193,272	2,372,816
1989	4,343,886	4,744,159	3,537,582
1990	6,007,007	6,097,751	4,336,260
1991	7,536,973	7,903,028	6,109,989
1992	9,238,180	8,727,271	7,339,362
1993	9,819,083	8,953,591	7,640,507
1994	10,786,075	10,364,872	8,277,961
1995	11,617,533	11,980,114	9,318,464
1996	12,661,825	13,376,998	10,479,847
1997	14,281,424	13,868,489	11,625,376
1998	13,035,928	12,590,607	11,133,096
1999	13,845,910	13,983,111	11,937,540
2000	15,688,174	15,624,796	13,423,609
2001	17,132,681	17,517,809	14,719,396

1. 가 .
2. .

7.1-1

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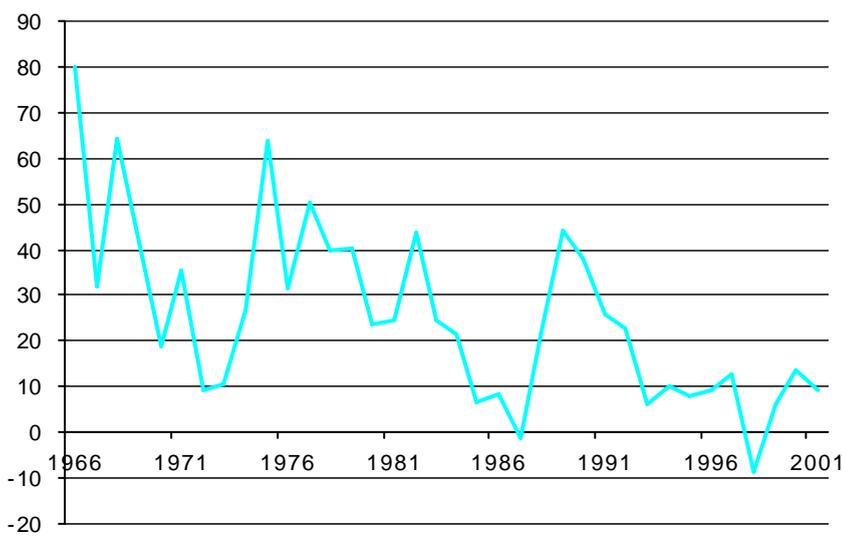


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7.1-2

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7.3

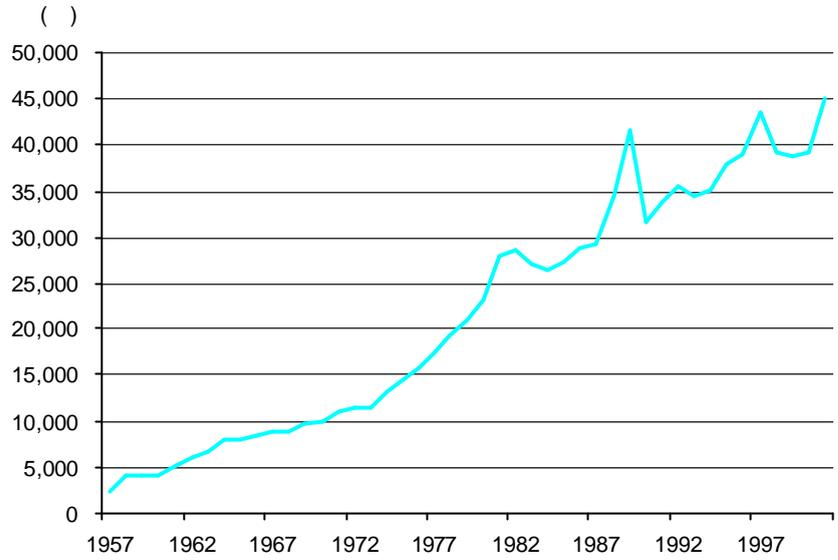
7.3-1

		/		/		/	
1957	2,377	499	21.0	1253	52.7	625	26.3
1958	4,087	516	12.6	2961	72.4	610	14.9
1959	4,054	507	12.5	3,028	74.7	519	12.8
1960	4,113	519	12.6	3,078	74.8	516	12.5
1961	5,085	693	13.6	3,730	73.4	662	13.0
1962	5,947	907	15.3	4,218	70.9	822	13.8
1963	6,719	969	14.4	4,178	62.2	1,572	23.4
1964	7,895	1,280	16.2	4,036	51.1	2,579	32.7
1965	8,066	1,275	15.8	4,071	50.5	2,720	33.7
1966	8,434	1,309	15.5	4,316	51.2	2,809	33.3
1967	8,751	1,357	15.5	4,504	51.5	2,890	33.0
1968	8,917	1,206	13.5	4,560	51.1	3,151	35.3
1969	9,648	1,207	12.5	5,284	54.8	3,157	32.7
1970	9,948	1,267	12.7	5,497	55.3	3,184	32.0
1971	10,935	1,492	13.6	5,977	54.7	3,466	31.7
1972	11,388	1,411	12.4	6,637	58.3	3,340	29.3
1973	11,316	1,391	12.3	6,658	58.8	3,267	28.9
1974	13,199	1,326	10.0	7,613	57.7	4,260	32.3
1975	14,470	1,396	9.6	9,688	67.0	3,386	23.4
1976	15,728	1,582	10.1	10,616	67.5	3,530	22.4
1977	17,457	1,967	11.3	11,792	67.5	3,698	21.2
1978	19,194	1,733	9.0	13,016	67.8	4,445	23.2
1979	20,829	1,881	9.0	14,142	67.9	4,806	23.1
1980	23,378	1,752	7.5	16,061	68.7	5,565	23.8
1981	28,021	1,781	6.4	18,077	64.5	8,163	29.1
1982	28,574	1,758	6.2	18,329	64.1	8,487	29.7
1983	27,081	1,768	6.5	18,702	69.1	6,611	24.4
1984	26,484	1,777	6.7	18,248	68.9	6,459	24.4
1985	27,323	1,887	6.9	18,949	69.4	6,487	23.7
1986	28,951	1,914	6.6	19,811	68.4	7,226	25.0
1987	29,396	1,886	6.4	20,050	68.2	7,460	25.4
1988	34,398	1,984	5.8	26,174	76.1	6,240	18.1
1989	41,632	1,914	4.6	31,196	74.9	8,522	20.5
1990	31,745	1,931	6.1	20,746	65.4	9,068	28.6
1991	33,822	2,013	6.0	22,445	66.4	9,364	27.7
1992	35,565	1,990	5.6	23,802	66.9	9,773	27.5
1993	34,491	1,946	5.6	23,137	67.1	9,408	27.3
1994	35,136	1,969	5.6	22,742	64.7	10,425	29.7
1995	37,878	1,983	5.2	25,318	66.8	10,577	27.9
1996	38,901	2,432	6.3	25,644	65.9	10,825	27.8
1997	43,586	2,610	6.0	25,277	58.0	15,699	36.0
1998	39,187	2,414	6.2	22,500	57.4	14,273	36.4
1999	38,875	2,619	6.7	22,709	58.4	13,547	34.8
2000	39,163	2,742	7.0	22,994	58.7	13,427	34.3
2001	45,081	2,770	6.1	29,609	65.7	12,702	28.2

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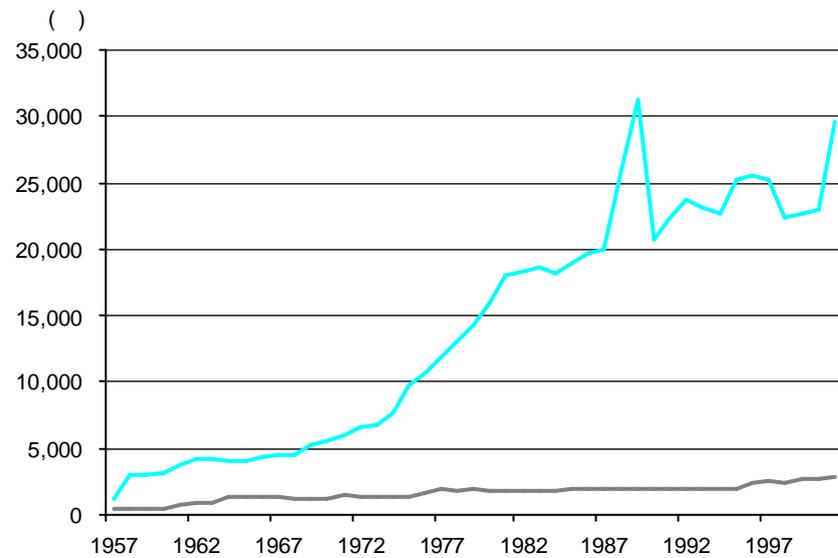
- 1.
2. 1986
- 3.

1989
1991
1990



1960 4,113 2001
45,081 가

1960 519
2001 2,700 가 가
1960 3,078
74.8% , 2001 29,000
65.7%
1960 516
2001 12,702



가
1964 1 , 80 1.9
1995 1, 1988~89 가 가 50~60%
700~1,900 , 2001
1996 2000 1989 3 65.7%
2001 2,770 1 가
1970 10% 90 1960 516
2001 6.1% 24.6 2001 12,702
1960 12.
70, 80 , 1970 2.6 가 가 5% 2001
28.2%

7.4

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	1)				/	/	/	/	/	/						
1973	93,607	83,541	89.2	14.9	610	0.7	23,290	24.9	17,647	18.9	13,969	14.9	22,252	23.8	15,839	16.9
1974	90,799	77,170	85.0	13.9	685	0.8	24,793	27.3	20,183	22.2	12,279	13.5	21,655	23.8	11,204	12.3
1975	110,291	91,835	83.3	16.0	948	0.9	27,494	24.9	26,153	23.7	14,388	13.0	25,936	23.5	15,372	13.9
1976	135,724	116,509	85.8	18.7	954	0.7	27,496	20.3	27,630	20.4	16,569	12.2	27,675	20.4	35,400	26.1
1977	146,790	127,781	87.1	19.5	977	0.7	25,008	17.0	27,651	18.8	16,620	11.3	33,580	22.9	42,954	29.3
1978	151,188	129,644	85.8	19.3	809	0.5	26,546	17.6	25,627	17.0	15,232	10.1	36,983	24.5	45,991	30.4
1979	160,702	136,446	84.9	19.8	982	0.6	27,008	16.8	25,863	16.1	15,239	9.5	33,843	21.1	57,767	35.9
1980	172,500	149,295	86.5	20.6	1,341	0.8	25,900	15.0	27,954	16.2	24,032	13.9	36,844	21.4	56,429	32.7
1981	178,854	156,387	87.4	20.6	1,385	0.8	25,239	14.1	28,601	16.0	31,234	17.5	39,374	22.0	53,021	29.6
1982	196,423	170,667	86.9	22.0	1,679	0.9	29,641	15.1	57,861	29.5	32,787	16.7	43,899	22.3	50,556	25.7
1983	242,743	199,328	82.1	26.4	1,744	0.7	31,917	13.1	41,062	16.9	28,421	11.7	52,747	21.7	86,852	35.8
1984	238,705	207,146	86.8	25.1	1,927	0.8	27,528	11.5	43,848	18.4	28,984	12.1	53,300	22.3	83,087	34.8
1985	239,470	207,262	86.6	24.8	2,189	0.9	26,418	11.0	48,150	20.1	26,715	11.2	54,435	22.7	81,563	34.1
1986	248,887	218,367	87.7	25.4	1,903	0.8	26,631	10.7	49,969	20.1	26,931	10.8	51,522	20.7	91,931	36.9
1987	278,846	248,486	89.1	27.9	1,965	0.7	23,130	8.3	56,081	20.1	26,477	9.5	57,547	20.6	113,646	40.8
1988	270,854	247,514	91.4	26.3	1,878	0.7	19,564	7.2	49,142	18.1	22,707	8.4	60,640	22.4	116,923	43.2
1989	324,529	279,781	86.2	30.7	2,417	0.7	35,986	11.1	55,905	17.2	21,649	6.7	66,217	20.4	142,355	43.9
1990	309,165	271,784	87.9	29.1	2,848	0.9	31,265	10.1	52,021	16.8	20,494	6.6	63,235	20.5	139,302	45.1
1991	310,362	287,004	92.5	28.5	2,192	0.7	25,020	8.1	53,287	17.2	23,153	7.5	59,864	19.3	146,846	47.3
1992	314,957	291,322	92.5	28.7	2,125	0.7	21,763	6.9	53,019	16.8	33,755	10.7	57,340	18.2	146,955	46.7
1993	345,568	335,598	97.1	31.6	2,887	0.8	17,686	5.1	59,473	17.2	43,937	12.7	58,206	16.8	163,379	47.3
1994	348,993	308,278	88.3	32.3	3,184	0.9	15,699	4.5	60,624	17.4	52,221	15.0	29,572	8.5	187,693	53.8
1995	353,994	314,621	88.9	34.6	2,420	0.7	15,908	4.5	57,914	16.4	65,679	18.6	9,116	2.6	202,957	57.3
1996	349,118	322,684	92.4	33.3	2,250	0.6	14,249	4.1	57,738	16.5	64,933	18.6	8,927	2.6	201,021	57.6
1997	349,414	326,372	93.4	33.6	2,370	0.7	12,947	3.7	58,548	16.8	56,599	16.2	9,211	2.6	209,739	60.0
1998	376,080	347,953	92.5	36.4	2,662	0.7	15,793	4.2	68,203	18.1	61,685	16.4	9,459	2.5	218,278	58.0
1999	349,464	332,654	95.2	33.9	2,841	0.8	14,543	4.2	85,257	24.4	57,787	16.5	11,118	3.2	177,918	50.9
2000	370,838	325,294	87.7	35.7	3,337	0.9	36,029	9.7	96,934	26.1	46,219	12.5	12,519	3.4	175,800	47.4

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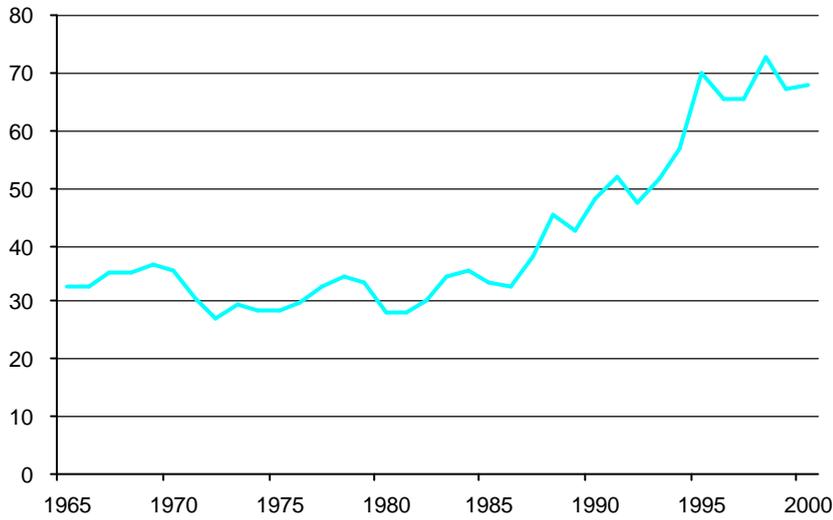
- 1.
2. 1996~2000

1965	1,126	NA	NA	NA	153,758	137	32.441
1966	1,233	NA	NA	NA	121,276	98	32.505
1967	1,390	NA	NA	NA	174,911	126	35.019
1968	1,515	NA	NA	NA	588,347	388	34.948
1969	1,751	NA	NA	NA	349,787	200	36.655
1970	1,912	61,934	74	308	502,239	263	35.191
1971	1,793	65,848	1,190	310	984,016	549	30.645
1972	1,644	62,858	103	377	707,108	430	27.057
1973	1,844	55,341	44	377	364,097	197	29.318
1974	1,865	47,338	160	481	370,444	199	28.510
1975	1,949	78,210	82	392	1,233,759	633	28.289
1976	2,154	60,311	65	301	705,144	327	29.690
1977	2,453	74,666	90	361	1,314,245	536	32.595
1978	2,670	72,089	80	369	1,436,517	538	34.129
1979	2,697	84,691	126	343	1,669,744	619	33.239
1980	2,344	66,125	85	227	1,201,169	512	28.024
1981	2,446	16,820	93	273	1,950,519	797	28.193
1982	2,684	19,426	75	241	2,664,338	993	30.102
1983	3,160	24,901	85	358	2,993,770	947	34.332
1984	3,347	81,311	102	359	3,679,737	1,099	35.226
1985	3,201	83,328	65	304	3,479,800	1,087	33.208
1986	3,190	77,881	117	345	2,474,780	776	32.556
1987	3,800	97,897	88	476	4,406,333	1,160	38.034
1988	4,668	103,541	87	387	5,164,090	1,106	45.380
1989	4,500	103,346	112	350	4,539,070	1,009	42.546
1990	5,093	99,179	89	379	3,998,714	785	47.990
1991	5,648	126,332	145	370	7,130,160	1,262	51.795
1992	5,198	112,775	124	256	6,001,950	1,155	47.384
1993	5,639	115,192	136	294	6,242,039	1,107	51.613
1994	6,120	122,910	137	369	9,450,377	1,544	56.673
1995	7,153	160,832	119	426	16,307,125	2,280	69.913
1996	6,843	128,782	114	365	11,811,430	1,726	65.359
1997	6,795	118,190	114	405	12,253,065	1,803	65.405
1998	7,511	105,293	90	340	17,620,111	2,346	72.770
1999	6,917	81,798	51	277	13,634,245	1,971	67.016
2000	7,058	79,023	100	332	17,338,551	2,457	68.040

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7.4-3

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1965 1,126 2000
 7,058 6.3 가
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 1965 32,441
 2000 68,040 2.1
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 , 80
 가 90 4
 , 2000
 6 8 가
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가 100

, 90 100

가

가
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70

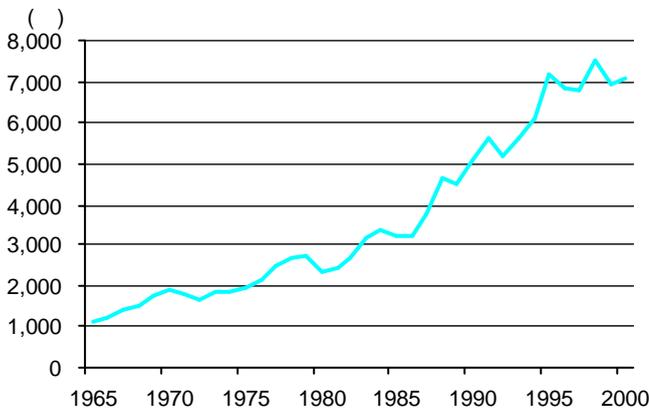
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7.4-4



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- 1) 1971 12 25 , 163
- 2) 1974 11 3 , 88
- 3) 1972 12 2 , 53
- 4) 1966 1 18 , 22
- 5) 1974 10 17 , 19
- 6) 1977 3 5 , 14
- 7) 1994 8 17 , 14
- 8) 1994 12 7 , 가 , 14
- 9) 1996 6 29 , , 11
- 10) 1984 2 3 , , 10

<http://119.seoul.go.kr/data/bak01.pdf>

1965	7,265	209	320	9	191	6,315	182	3,764
1966	6,683	176	232	6	112	6,460	170	2,982
1967	8,360	211	179	5	73	7,973	201	3,255
1968	11,598	268	220	5	65	9,975	230	2,955
1969	14,038	294	404	9	81	12,241	256	2,457
1970	15,963	294	534	10	88	13,789	250	2,281
1971	21,496	367	725	12	108	18,533	317	2,755
1972	20,024	330	748	12	109	17,055	281	2,490
1973	18,165	289	660	11	86	16,226	258	2,127
1974	18,909	289	711	11	89	17,620	269	2,196
1975	25,155	365	845	12	99	21,097	306	2,470
1976	29,410	405	859	12	89	21,511	297	2,228
1977	28,200	375	815	11	67	22,767	303	1,874
1978	30,576	391	956	12	57	25,598	327	1,532
1979	36,472	449	1,109	14	55	30,390	375	1,511
1980	37,657	450	1,041	12	50	32,368	387	1,565
1981	41,040	473	1,074	12	48	34,928	403	1,576
1982	44,261	496	1,091	12	43	38,898	436	1,534
1983	51,831	563	1,169	13	37	44,534	484	1,410
1984	39,700	418	1,262	13	33	48,495	510	1,286
1985	42,828	444	1,208	13	27	53,421	554	1,198
1986	41,884	427	1,031	11	20	51,915	530	995
1987	49,413	495	1,073	11	17	61,116	612	967
1988	56,008	544	1,242	12	16	70,354	682	903
1989	63,835	604	1,371	13	14	79,041	752	797
1990	58,231	549	1,254	12	11	71,155	663	596
1991	56,528	518	1,305	12	9	68,022	623	495
1992	51,333	468	986	9	6	62,837	592	400
1993	49,422	452	809	7	5	62,036	568	354
1994	46,479	430	802	8	4	59,774	557	309
1995	42,100	411	865	8	4	54,364	505	266
1996	46,031	440	789	8	4	60,643	579	280
1997	40,863	393	606	6	3	55,139	531	245
1998	42,055	407	545	5	2	57,669	562	262
1999	50,047	485	566	6	2	69,456	677	302
2000	53,569	516	748	7	3	74,399	717	305

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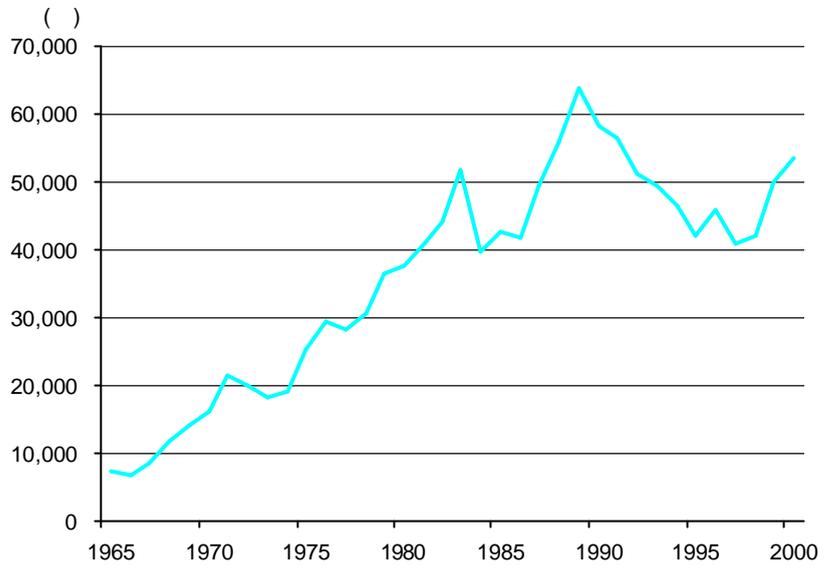
1. 1983

가

http://www.nso.go.kr/cgi-bin/sws_999.cgi?ID=DT_1S31&IDTYPE=3

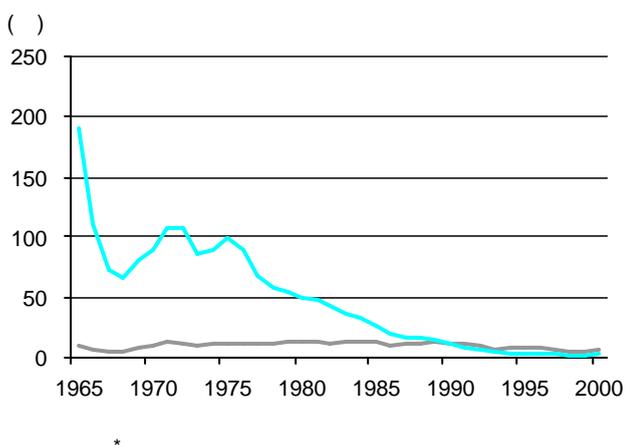
7.4-5

1960
가
1980
가
1960
1
1980
4
1989
835
1997
가
2000
53,000
10
1970
10
300
1980
400
1980
500~600
1990
가
1997
400
가
2000
500
1980
100
1990
500
200
748
가

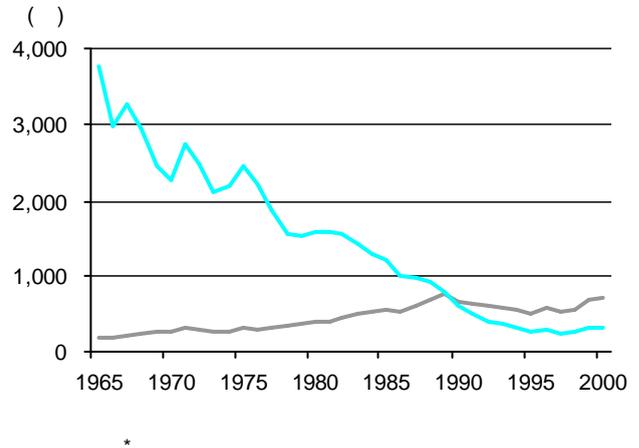


1970
가
1980
가
2000
10
가
100
10
1980
50
1990
2000
3
1990
2,000
500
2000
305
가

7.4-6



7.4-7



1969	130,703	10,894	67	16	49	2	2,626	NA	NA	118,145
1970	33,672	3,313	62	21	36	5	8,549	NA	NA	NA
1971	119,191	2,307	76	35	34	7	1,703	NA	NA	NA
1972	NA	230,983	485	281	180	24	41,514	757,268	NA	NA
1973	NA	NA	5	NA	5	NA	33	2,800	NA	NA
1974	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1975	3	NA	NA	NA	NA	NA	198	2	NA	NA
1976	52	485	1	1	NA	NA	497	2	34	16
1978	63	3,451	3	NA	3	NA	732	2	21	41
1979	32	NA	8	6	NA	2	120	NA	30	2
1980	24	NA	2	NA	2	NA	4	2	15	7
1981	188	328	8	2	1	5	111	4	3	28
1982	15	49	3	1	NA	2	131	3	9	3
1983	188	99	11	5	6	NA	123	7	163	13
1984	20,274	289,804	95	41	52	2	34,964	3,084	9,249	7,757
1985	173	73	14	3	11	NA	282	20	92	59
1986	287	NA	6	3	3	NA	14	7	252	28
1987	19,003	34,926	109	39	68	2	311	376	4,724	10,456
1988	16	30	2	NA	2	NA	6	15	NA	1
1989	20	NA	NA	NA	NA	NA	3	1	5	14
1990	10,765	93,133	71	31	27	13	17,981	1,304	8,179	465
1991	261	17	19	NA	16	3	275	34	136	91
1992	40	7	1	1	NA	NA	97	1	35	4
1993	8	NA	2	2	NA	NA	96	NA	5	3
1995	4,312	NA	5	3	1	1	17	14	4,026	272
1996	37	NA	7	2	5	NA	2,213	31	4	2
1997	461	161	NA	NA	NA	NA	241	149	32	281
1998	51,396	2,287	61	24	37	NA	40,386	900	27,028	23,415
1999	10,509	1,823	3	NA	3	NA	716	311	9,570	629
2000	878	NA	5	NA	5	NA	92	82	671	125
2001	58,368	465	139	35	104	NA	95,286	8,128	31,886	18,338

1987

가

가 , 109

1972 8 (Betty) 190

1984 9 (Holly)

1972 8 (Betty)가

가 485 가

, 8 18 19 450 1990 9 486 mm

mm 가

. 1984 (71 ,

9 (Holly) 108), 1998 7 31

가 8 18 61

514 570 mm 139

. 가 584 가

2001 7 29

1. 가

1969~1978 :

1979~2001 :

http://www.nso.go.kr/cgi-bin/sws_999.cgi?ID=DT_1S34&IDTYPE=3&FPUB=3

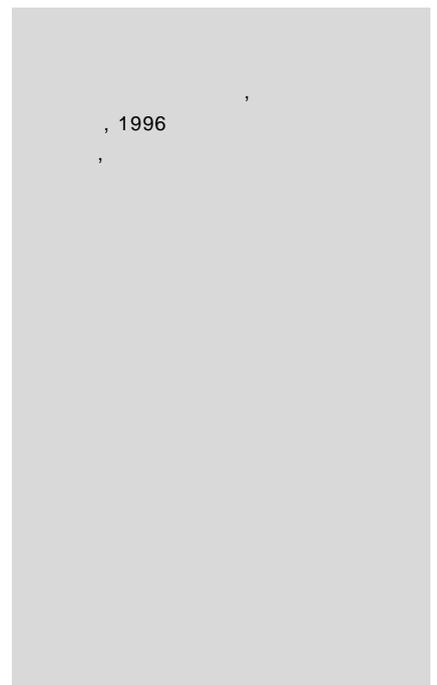
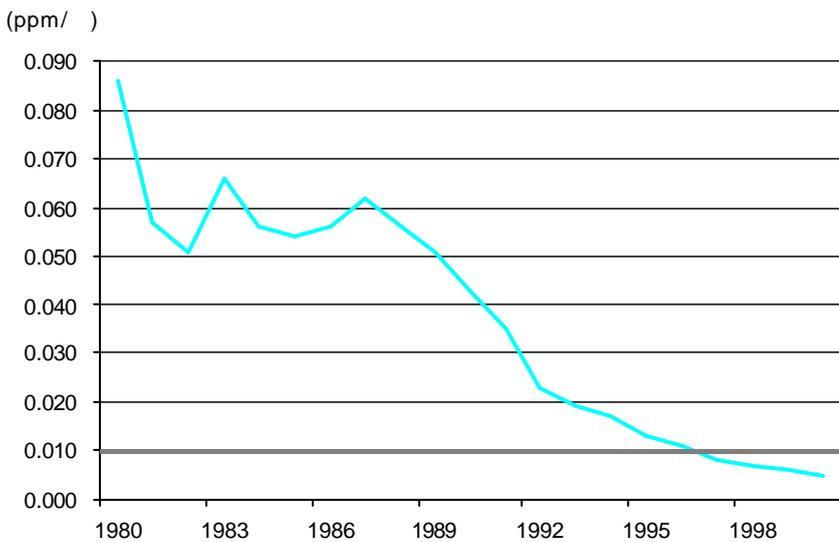
7.4 - 5

1960~70 가
 , 80 가 80
 1988 가
 , 80 가
 1990 가
 가 1980 0.094ppm
 가 , 9.4 가
 , 1996
 1997 0.011ppm

가	(SO)	(NO)	(TSP)
1980	0.094	NA	NA
1981	0.086	0.028	156
1982	0.057	0.027	168
1983	0.051	0.028	225
1984	0.066	0.030	254
1985	0.056	0.034	200
1986	0.054	0.033	183
1987	0.056	0.033	175
1988	0.062	0.033	179
1989	0.056	0.027	149
1990	0.051	0.029	131
1991	0.043	0.033	121
1992	0.035	0.031	97
1993	0.023	0.032	88
1994	0.019	0.032	78
1995	0.017	0.032	85
1996	0.013	0.050	85
1997	0.011	0.040	68
1998	0.008	0.033	59
1999	0.007	0.032	66
2000	0.006	0.035	65
2001	0.005	0.037	71
	0.010	0.040	70
	ppm/	ppm/	µg/m ³

7.4 - 8

가



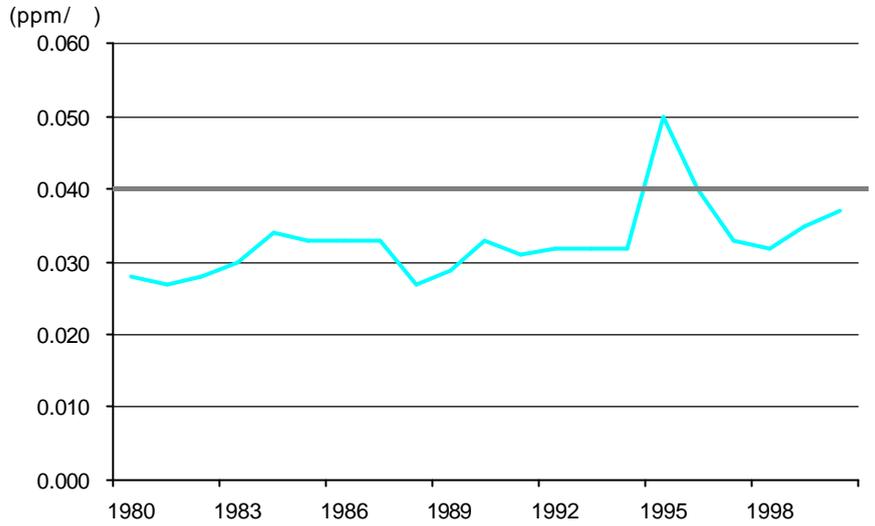
7.4-9

1996 0.050ppm
0.040ppm

가 가 80

1981 70
 $\mu\text{g} / \text{m}^2$ 2.2 156 $\mu\text{g} / \text{m}^2$
 m^2 가 1983~85 200 $\mu\text{g} / \text{m}^2$

1984 254 $\mu\text{g} / \text{m}^2$
1997 68 $\mu\text{g} / \text{m}^2$
2001 71 $\mu\text{g} / \text{m}^2$



7.4-10

