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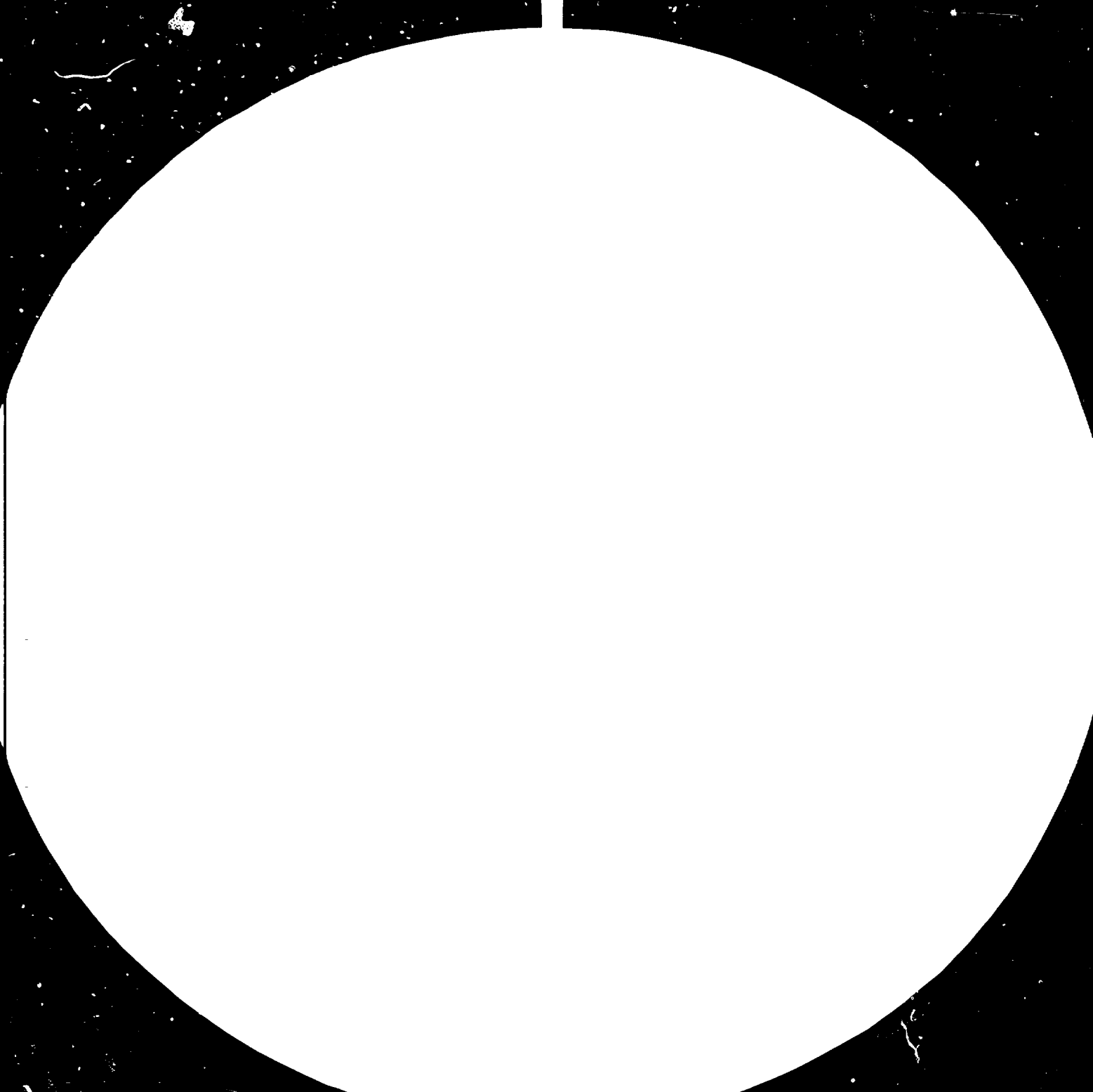
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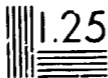
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THE PULP AND PAPER INDUSTRY IN KOREA *

by

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2126

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GENERAL REVIEW

In 1948, there were 15 paper plants with a combined annual production capacity of only 25,000 M/T, but annual production amounted to a meager 7,000 M/T as the plants were operating at only 30 per cent of their capacity. The paper industry had rapidly increased its production until the breakout in 1950 of the Korean War which destroyed about 70 per cent of the entire facilities. However, after the armistice agreement was signed, damaged mills were rehabilitated and new mills were constructed. As of 1980, the industry has about 140 mills with a total production capacity of 2,057,000 M/T. This growth is expected to continue at an accelerating pace, being backed by rising level of national income, growing industry, export boost and enhancement of cultural life. In the last 10 years from 1970 through 1979, the paper industry chalked up an average annual production growth rate of 19.3 per cent, and in 1979, the total output of paper and paper products hit 1,594,000 M/T. By the end of 1980, the output is expected to reach 1,387,000 M/T.

Meanwhile, the pulp industry in Korea is still in the development stage due to shortage of domestic forest resources and low profitability of the industry although the pulp industry, as a capital-intensive one, requires vast sums of investments in facilities. In this light, developing the pulp industry and securing a stable supply of a pulp is a primary and urgent task facing the Korean pulp industry. For years, the Korean government and the industry have been making efforts to utilize domestically available resources and increase the level of self-sufficiency in pulp. The Donghae Pulp Corporation, the outgrowth of such long-standing efforts, was put into operation as Korea's only chemical pulp mill with a daily production capacity of 300 M/T by April 1980.

PRESENT STATUS OF PAPER INDUSTRY

1. Production Facilities

Backed by the rapid growth of domestic industries, increasing level of national income, export boost and increasing level of cultural life among the people, the Korean paper industry has been steadily expanding its facilities. In 1972, in particular, extensive expansion was made for printing, kraft and board paper, while in and after 1974, the expansion was largely for industrial papers including kraft and board paper. As a result, the total annual paper production capacity of Korea reached 2,057,000 M/T as of 1980, representing a whopping 12-fold increase from the 174,000 M/T in 1962, and 3.5-fold rise over the 592,000 M/T in 1972.

The growing demand at home for paper products, coupled with overseas demand, inevitably led to the expansion of faci-

ilities. Plant construction projects, some new under way and others still on the drawing board, are 3 printing paper mills with capacity of 149,000 M/T, 2 kraft paper mills with capacity of 87,000 M/T, and board mills with capacity of 46,000 M/T. When all these projects are completed, the Korean paper industry should boast a total production capacity of 2,262,000 M/T by 1981.

TABLE 1: PAPER PRODUCTION CAPACITY

year	total	newsprint	Unit: M/T			
			printing paper	kraft paper	paper board	others
1962	174,100	47,000	26,600	25,000	27,500	49,000
1966	193,200	52,000	29,500	27,500	30,600	53,600
1963	344,600	80,000	50,400	45,500	108,700	60,000
1970	520,200	117,000	113,500	96,500	133,200	50,000
1972	592,100	117,000	153,000	105,000	157,100	50,000
1973	720,000	150,000	190,000	110,000	160,000	100,000
1974	840,000	150,000	190,000	110,000	280,000	100,000
1975	847,000	157,000	190,000	110,000	280,000	100,000
1976	904,000	157,000	164,000	168,000	336,000	69,000
1977	1,440,000	232,000	209,000	168,000	612,000	219,000
1978	1,543,000	232,000	218,000	168,000	705,000	219,000
1979	1,845,000	249,000	252,000	172,000	1,031,000	141,000
1980	2,067,000	232,000	331,000	252,000	1,011,000	141,000

Note: Change was made for paperboard and other paper in accordance with change in the kind of paper products.

2. Production Trend

In the 18 years since 1962 when the first five-year economic development plant got off the ground, the production of various paper products has risen sharply as indicated by the remarkable growth of production capacity. The total production of paper and paper products in 1979 amounted to 1,594,000 M/T, recording a staggering 19.4-fold jump over the 82,000 M/T in 1962, and a 3-8-fold rise over the 417,000 M/T in 1972. For ten years from 1970 to 1979, production grew at an average annual rate of 19.3 per cent. Plant operation rate reached 86.4 per cent.

3. Export and Import Trend

The domestic demand for paper has been mostly met by locally produced paper, except for a small quantity of special papers not produced domestically due to lack of economic feasibility or delay in the development of required technology. The quantity of imported paper stood approximately at 10 per cent of domestic paper demand until 1970, but the ratio dropped to five per cent thereafter, and again down to two per cent in 1979. Exports of paper and paper products had been minimal until 1960 as the paper industry, not backed by a pulp industry or sufficient production facilities, was weak in international competitive power. However, since 1972, the paper industry has grown rapidly into an export establishment in line with the expansion of facilities, increasing exports from a mere 409 M/T in 1965 to 36,000 M/T in 1975 and 52,600

M/T worth US\$28,056,000 in 1979. In 1980, the amount will be 180,000 M/T worth US\$105,000,000.

TABLE 2: PAPER PRODUCTION

year	total	newsprint	Unit: M/T			
			printing paper	kraft paper	paper board	others
1960	54,825	25,912	8,877	2,403	3,677	12,596
1965	120,407	45,397	28,391	20,682	19,987	5,050
1970	329,530	101,547	73,005	47,928	83,585	25,365
1971	374,970	104,600	84,259	62,505	89,318	34,188
1972	415,959	108,413	101,188	70,555	105,259	31,547
1973	511,187	119,573	137,220	83,524	133,024	37,846
1974	617,532	151,998	139,933	99,511	182,564	43,526
1975	661,722	155,181	131,932	87,228	235,666	51,715
1976	906,692	165,462	158,479	119,003	401,259	63,279
1977	1,124,747	188,321	197,084	148,835	508,348	82,159
1978	1,365,173	182,899	247,120	150,472	655,336	129,346
1979	1,593,652	193,825	297,804	179,736	780,908	141,379

TABLE 3: PAPER EXPORTS

year	total	newsprint	Unit: M/T			
			printing paper	kraft paper	paper board	others
1960	-	-	-	-	-	-
1965	409	-	106	-	-	303
1970	50	1	1	-	3	45
1971	318	5	3	-	55	255
1972	3,711	248	2,982	-	270	211
1973	35,557	-	15,107	7,085	3,499	10,966
1974	30,658	97	10,399	5,098	5,797	9,267
1975	36,167	4,403	10,882	-	8,655	12,227
1976	65,490	8,399	23,811	-	15,195	18,034
1977	59,733	4,184	32,890	1,067	15,183	6,409
1978	59,870	3,750	35,613	336	13,599	6,572
1979	52,590	2,387	18,095	399	28,819	2,889

4. Domestic Consumption Trend

Domestic paper consumption hit 1,559,000 M/T in 1979, representing a staggering 5.6-fold jump from the mere 278,000 M/T in 1968. Until early 1970, the consumption of newsprint and printing paper far outweighed such industrial paper as kraft and board paper. But since 1974, the weight of industrial paper in the total consumption has risen sharply in line with the growth of the domestic industry and export boom in related industries. Per capita paper consumption, which stood at only 2.3 kg. in 1960, rose to 13.9 kg. in 1972, 18.6 kg. in 1975, and 42 kg. in 1979. Compared with advanced countries, however, the per capita consumption is visibly small, leaving room for much more rise in consumption.

TABLE 4: PAPER IMPORTS

year	Unit: M/T					
	total	newsprint	printing paper	kraft paper	paper board	others
1960	29,443	17,555	5,559	3,191	2,720	308
1965	4,875	2,129	142	1,351	60	1,193
1970	28,319	5,538	228	962	10,671	9,320
1971	42,417	12,782	668	1,342	14,972	12,653
1972	35,100	5,320	198	5,511	18,278	4,583
1973	32,793	5,276	135	2,486	17,012	7,884
1974	25,225	-	143	285	24,277	520
1975	17,011	5	122	327	16,792	755
1976	23,026	-	982	12	5,388	17,144
1977	18,973	-	93	136	2,260	16,494
1978	24,723	-	1,072	2	5,750	16,904
1979	30,050	-	459	278	11,479	17,834

TABLE 5: PAPER EXPORTS TREND BY COUNTRY

year	total	Unit: %													
		Ja-pan	Chi-na	Phil-ippines	Hong-Kong	Ma-lay-sia	Sin-ga-pore	Indo-nesia	Bur-ma	Ir-an	U.S.	Thailand	Prance	Saudi-Arabia	Others
1972	100	3.5	-	9.1	67.8	1.2	0.6	9.3	-	-	-	8.2	-	-	-
1973	100	2.9	-	0.3	25.5	4.5	2.7	4.6	4.9	24.6	14.6	0.7	1.3	0.2	12.6
1974	100	63.9	-	-	-	0.2	-	-	-	-	30.2	-	-	-	5.7
1975	100	6.5	-	3.1	25.9	4.5	2.7	5.9	5.0	24.9	14.8	0.7	1.5	0.3	4.0
1976	100	3.5	-	7.5	32.3	4.3	12.4	8.4	6.7	7.9	9.7	1.7	0.5	0.3	2.9
1977	100	8.7	-	10.6	25.8	4.1	3.5	9.1	10.0	8.9	-	-	-	-	13.2
1978	100	2.0	-	14.2	33.3	3.9	7.5	7.5	-	10.3	0.2	1.3	3.0	0.5	15.3
1979	100	2.3	7.5	10.3	51.1	2.6	8.4	5.1	0.5	0.4	-	2.0	3.7	1.8	4.1

TABLE 6: PAPER CONSUMPTION

year	Unit: M/T					
	total	newsprint	printing paper	kraft paper	paper board	others
1960	84,263	44,567	14,446	5,594	6,397	13,259
1965	124,373	47,526	23,427	22,033	19,947	6,940
1970	357,799	108,284	73,232	48,890	94,252	33,140
1971	412,519	116,877	83,174	63,947	102,435	46,086
1972	444,387	112,685	96,537	77,037	122,122	35,006
1973	499,656	125,380	116,058	77,952	144,738	34,618
1974	572,820	148,254	114,962	90,381	191,290	27,933
1975	646,573	137,969	126,031	88,823	249,191	44,559
1976	833,591	168,717	143,518	119,714	388,474	63,068
1977	1,085,021	185,427	166,376	145,020	495,405	92,203
1978	1,339,201	179,028	213,179	156,142	651,327	139,529
1979	1,559,117	192,921	279,527	170,630	751,419	155,520

5. Demand Forecast

Paper demand during the period of the fourth five-year economic development plan which started in 1980 is expected

to grow at a modest pace, but by 1979, it is expected to grow an average annual rate of 20.1 per cent. The demand for kraft paper is expected to grow at the rate of 6.7 per cent, that of newsprint 12.4 per cent, that for printing paper at 14.6 per cent, and that for paper board at 24.4 per cent.

TABLE 7: PAPER DEMAND FORECAST

Unit: 1,000 M/T

year	total	newsprint	printing paper	kraft paper	paper board	others
1980	1,343	217	321	191	934	180
1982	2,177	261	369	209	1,121	217
1983	2,537	313	424	228	1,361	261
1984	3,082	376	491	250	1,652	313

PRESENT STATUS OF PULP INDUSTRY

1. Production Facilities, Supply and Demand

As of 1980, annual production capacity included 199,000 M/T of ground wood pulp for production of newsprint and 16,000 M/T of bleached ground wood pulp. Korea is unable to produce other types of pulp. Demand for chemical pulp, for instance, is filled entirely with imports. In 1979, the total demand for ground wood pulp stood at 149,658 M/T, of which 139,319 M/T were met with domestic products, recording a 93.1 per cent self-sufficiency rate. The demand for chemical pulp totalled 434,580 M/T. All the demands were filled with imports.

TABLE 8: PULP SUPPLY AND DEMAND TREND

Unit: M/T

year	Total			Production			Imports		
	Total	Ground wood pulp	Chemical pulp	Total	Ground wood pulp	Chemical pulp	Total	Ground wood pulp	Chemical pulp
1960	54,585	35,078	19,507	28,494	28,494	-	26,091	6,584	19,507
1965	92,263	35,138	57,125	33,117	31,704	1,413	59,146	3,434	55,712
1970	239,695	89,354	149,841	80,204	75,391	4,813	159,491	14,463	145,028
1971	293,257	97,548	206,309	84,458	79,391	5,067	209,399	8,157	201,242
1972	313,793	83,349	230,444	84,284	79,143	5,141	229,509	4,206	225,303
1973	393,238	83,310	299,928	81,551	76,801	4,750	301,687	6,509	295,178
1974	373,453	112,069	261,384	96,774	92,161	4,613	276,679	18,908	258,771
1975	325,250	102,026	223,224	93,802	87,109	6,693	231,448	14,917	216,531
1976	368,381	95,603	272,778	105,793	89,696	16,097	262,588	5,807	256,781
1977	447,312	115,039	332,773	128,993	110,401	18,592	318,814	4,638	314,176
1978	478,159	100,190	377,979	98,643	93,805	4,838	379,526	6,385	373,141
1979	584,230	149,658	434,580	139,319	139,319	-	444,919	10,339	434,580

TABLE 9: PULP IMPORT TREND BY COUNTRY

	Total	Unit: %												
		Ja-pan	Canada	U.S.A.	W.Ger-many	Swe-den	Chi-na	Thai-land	New-Zea-land	Fin-land	Pa-kis-tan	Swa-zi-land	Chi-le	Ot-hers
1964	100	0.3	1.1	85.0	0.3	5.2	5.9	-	-	-	-	-	-	1.2
1968	100	2.5	2.2	86.2	1.3	2.2	2.0	-	0.2	-	-	-	-	2.8
1970	100	3.5	7.3	70.1	0.6	3.6	3.6	-	0.3	-	0.2	0.4	-	3.3
1972	100	20.2	27.0	21.1	0.1	7.4	11.6	-	1.3	-	-	10.0	-	1.3
1973	100	14.9	31.4	15.9	-	14.6	4.9	-	1.1	-	-	6.7	-	9.4
1974	100	13.4	32.2	21.6	-	16.3	3.1	-	1.2	-	3.1	-	8.6	-
1975	100	13.6	24.7	25.0	-	1.4	8.4	-	6.1	-	1.0	3.1	-	0.5
1976	100	22.6	19.0	30.6	-	0.1	5.5	-	7.2	-	-	15.2	6.5	2.1
1977	100	23.9	21.9	23.2	-	0.4	3.9	-	3.8	-	0.3	6.0	16.1	0.5
1978	100	15.9	25.1	18.0	0.3	12.1	4.6	-	3.7	-	0.1	5.5	10.7	1.9
1979	100	17.6	19.6	23.3	-	6.5	2.2	4.7	5.4	2.6	-	5.9	9.4	0.6

2. Demand and Supply Forecast

Korea's ground wood pulp mills have enough capacity to meet domestic demand. Hence, there is no major problem in the supply and demand concerning ground wood pulp. In case of the chemical pulp, Korea has to fill the entire demand with imports in 1979. And it seems to substitute a part of the operation of Donghae Pulp mill that will be completed on April 1980. But even when the Donghae Pulp mill goes into operation in 1980 at its full capacity of 125,000 M/T, the output will cover only about 20 per cent of the total demand. In this light, development and import of foreign forest resources for security of raw materials has remained a pressing task for the Korean paper industry.

TABLE 10: PULP DEMAND FORECAST

SPEC	Unit: 1,000 M/T			
	1980	1981	1982	1983
GP	201	241	289	346
SKP	28	33	40	48
BKP	294	343	401	472
UKP	192	212	237	264
total	715	829	967	1,130

STATUS OF WASTE PAPER SUPPLY AND DEMAND

1. Trend of Use of Waste Paper

The ratio of waste paper used in domestic paper industry stood at only 29.8 per cent in 1971. But the ratio has been on the steady rise along with increasing utilization of waste paper resulting from the campaign to reduce costs and economize on resources in the wake of the resources pinch during the 1973-1974 period. The ratio of waste paper to the total raw materials for paper reached 64.7 per cent, down 0.1 per cent from the 64.8 per cent recorded in 1978.

2. Trend of Waste Paper Supply and Demand

The annual volume of waste paper used in 1979 amounted to 1,071,938 M/T, up 14.6 per cent over the 935,519 M/T in the preceding year. Among the total volume, domestically retrieved waste paper accounted for 56.2 per cent, an increase of 0.3 per cent from the 55.9 per cent recorded in 1978. The waste paper made available at home amounted to 602,772 M/T, and imported waste paper reached 469,216 M/T accounting for 43.8 per cent of the total volume used in 1979.

TABLE 11: RATE OF WASTE PAPER USED IN PAPER PRODUCTION

	Unit: %							
	1972	1973	1974	1975	1976	1977	1978	1979
	33.0	36.9	45.7	54.5	61.2	62.5	64.6	64.7

TABLE 12: WASTE PAPER SUPPLY AND DEMAND TREND

	Supply Source	Unit: M/T		
		1977	1978	1979
ONP	domestic	34,595 (16.0)	42,079 (16.6)	51,017 (18.1)
	import	180,537 (84.0)	210,823 (83.4)	230,328 (81.9)
	total	215,132 (100.0)	252,902 (100.0)	281,345 (100.0)
OCC	domestic	115,312 (49.2)	195,465 (59.5)	242,629 (60.6)
	import	119,081 (50.8)	133,001 (42.5)	158,054 (39.4)
	total	234,393 (100.0)	328,466 (100.0)	400,683 (100.0)
Others	domestic	253,969 (79.4)	285,642 (80.7)	309,126 (79.3)
	import	65,964 (20.6)	68,509 (19.3)	80,834 (20.7)
	total	319,933 (100.0)	354,151 (100.0)	389,960 (100.0)
Total	domestic	403,766 (52.5)	523,186 (55.9)	602,772 (56.2)
	import	365,582 (47.5)	412,333 (44.1)	469,216 (43.8)
	total	769,348 (100.0)	935,519 (100.0)	1,071,988 (100.0)

TABLE 13: WASTE PAPER IMPORT TREND BY COUNTRY IN 1973

						Unit: %
U.S.A.	Japan	Hong Kong	Canada	New Zealand	Others	Total
56.4	1.1	36.8	0.6	0.05	0.05	100

TABLE 14: WASTE PAPER RECOVERY RATE

				Unit: 1,000 M/T
Year	Paper Consumption	Waste paper collected	Recovery rate	
1971	411	96	23.3	
1972	446	117	26.2	
1973	521	86	16.5	
1974	612	158	25.8	
1975	648	209	32.2	
1976	824	281	34.1	
1977	1,094	404	36.9	
1978	1,339	523	39.1	
1979	1,559	633	40.7	

