

## General Situation

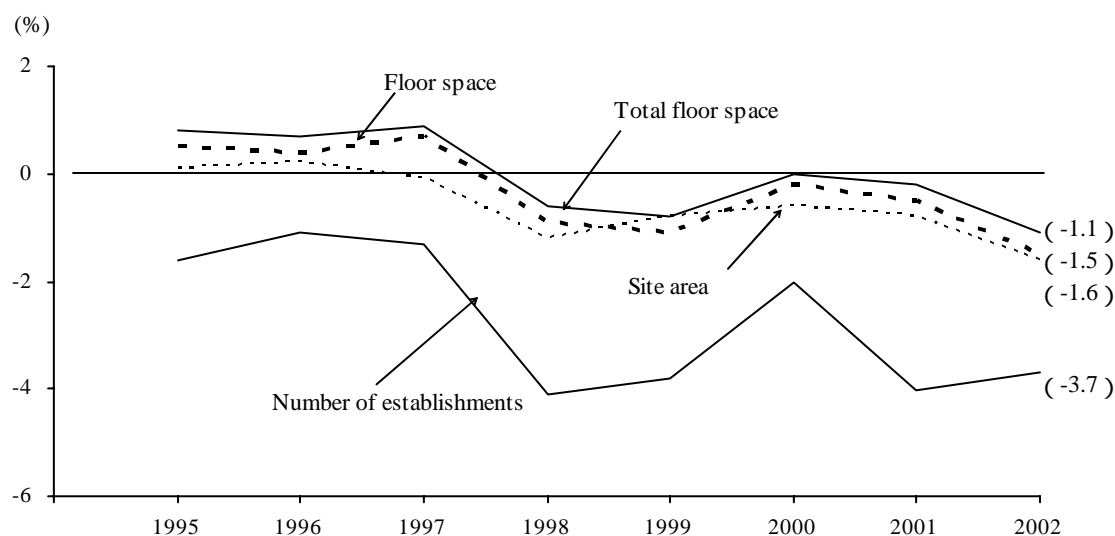
### I. Industrial Sites

The number of establishments engaged in manufacturing industry with 30 or more employees in 2002 was 47,046, down 3.7% from the previous year, showing a decline for the eleventh straight year (Table 1, Figure 1).

Site area of establishments was 1.41823 billion m<sup>2</sup> (down 1.6% compared to the previous year), floor space was 377.17 million m<sup>2</sup> (down 1.5% id.) and total floor space was 505.23 million m<sup>2</sup> (down 1.1% id.), indicating a decline respectively. Site area per establishment was 30,146 m<sup>2</sup> in manufacturing average, up 2.2% from the previous year.

The value of shipment of manufactured goods per 1,000 m<sup>2</sup> of total floor space was 461.64 million yen (down 2.7% id.), a decline for 2 consecutive years.

**Figure 1 Transition in year-on-year comparison ratio in major items of industrial sites**  
(Establishments with 30 or more employees)



Note: The number in parentheses show ratios compared to the previous year.

**Table 1 Transition in major items of industrial sites**  
(Establishments with 30 or more employees)

Year	Number of establishments		Site area		Floor space		Total floor space		Value of shipment per 1,000 m <sup>2</sup> of total floor space	
		Y/Y (%)	(1,000 m <sup>2</sup> )	Y/Y (%)	(1,000 m <sup>2</sup> )	Y/Y (%)	(1,000 m <sup>2</sup> )	Y/Y (%)	(10 thousand yen)	Y/Y (%)
1995	56,749	-1.6	1,478,266	0.1	385,845	0.5	508,595	0.8	50,799	1.4
1996	56,106	-1.1	1,480,905	0.2	387,520	0.4	511,980	0.7	51,852	2.1
1997	55,386	-1.3	1,479,934	-0.1	390,114	0.7	516,554	0.9	53,293	2.8
1998	54,518	-4.1	1,474,839	-1.2	390,442	-0.9	518,648	-0.6	49,896	-6.4
1999	52,469	-3.8	1,462,761	-0.8	386,057	-1.1	514,749	-0.8	48,286	-3.2
2000	51,434	-2.0	1,453,612	-0.6	385,355	-0.2	514,995	0.0	50,098	3.8
2001	49,364	-4.0	1,442,586	-0.8	383,510	-0.5	513,982	-0.2	48,010	-4.2
2002	47,046	-3.7	1,418,233	-1.6	377,166	-1.5	505,230	-1.1	46,164	-2.7

Note 1: Because of the adjustment of establishments in the 1998 survey, the year-on-year comparison is based on a time series.

Note 2: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

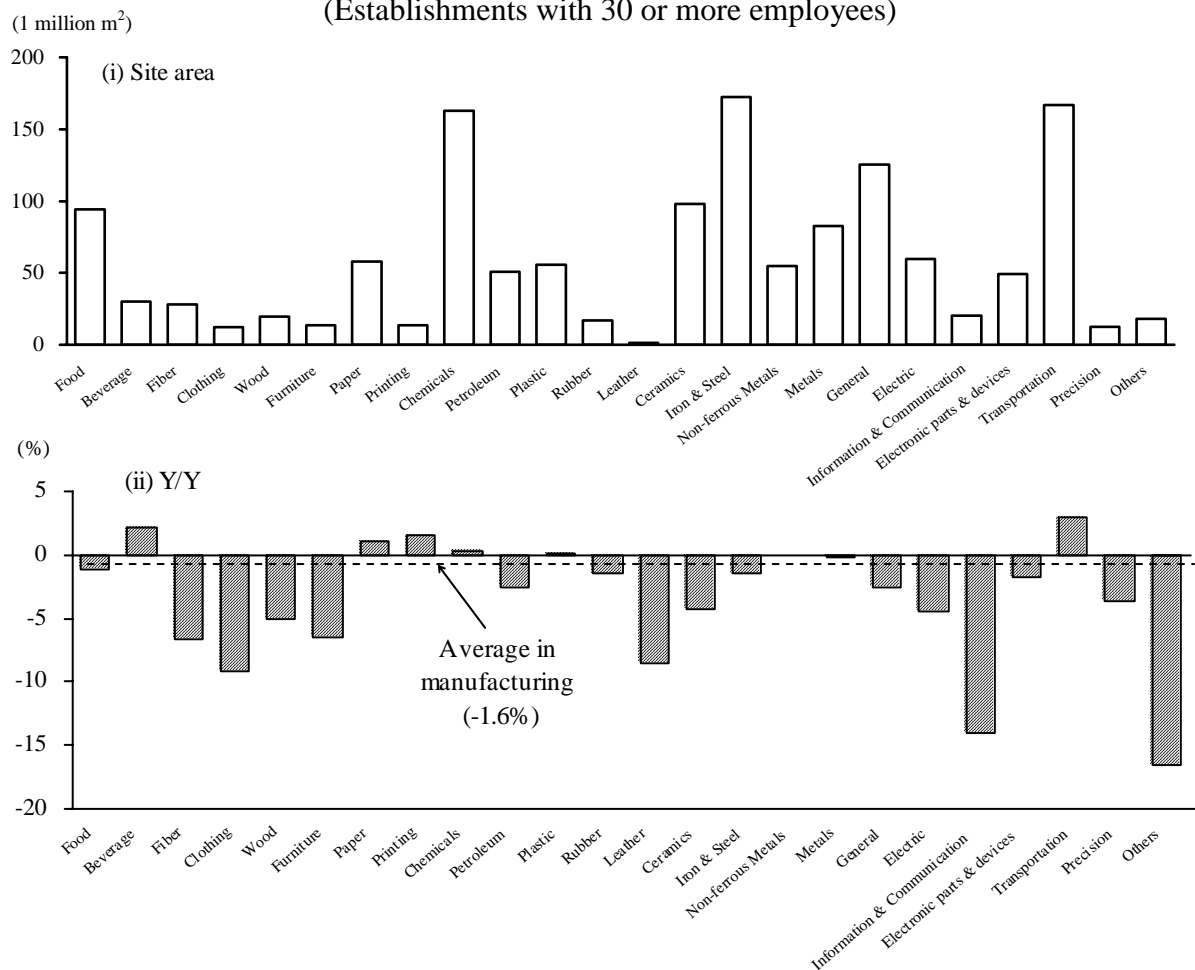
## 1. Situation by industry

### (1) Site area

- (i) The site area of establishments was 1.41823 m<sup>2</sup>, down 1.6% compared to the previous year, which was a decline for 6 consecutive years (Table 1). Comparing by industry, industries with establishments which have large site area are “iron and steel” (172.49 million m<sup>2</sup>, composition ratio 12.2%), “transportation equipment” (166.81 million m<sup>2</sup>, 11.8% id.), “chemical and allied products” (162.8 million m<sup>2</sup>, 11.5% id.), “general machinery” (125.51 million m<sup>2</sup>, 8.8% id.), “ceramic, stone and clay products” (98.1 million m<sup>2</sup>, 6.9% id.), “food” (94.41 million m<sup>2</sup>, 6.7% id.) and “fabricated metal products” (82.57 million m<sup>2</sup>, 5.8% id.) (Table 2, Figure 2).

The year-on-year comparison ratio declined in 18 industries including “ceramic, stone and clay products” (down 4.2% compared to the previous year”, “miscellaneous manufacturing industries” (down 16.5% id.), “information and communication electronics equipment” (down 14.1% id.), “general machinery” (down 2.5% id.) and “electrical machinery, equipment and supplies” (down 4.5% id.). It increased in 6 industries including “transportation equipment” (up 2.9% id.) and “beverages, tobacco and feed” (up 2.1% id.).

**Figure 2 Site area by industry**  
(Establishments with 30 or more employees)

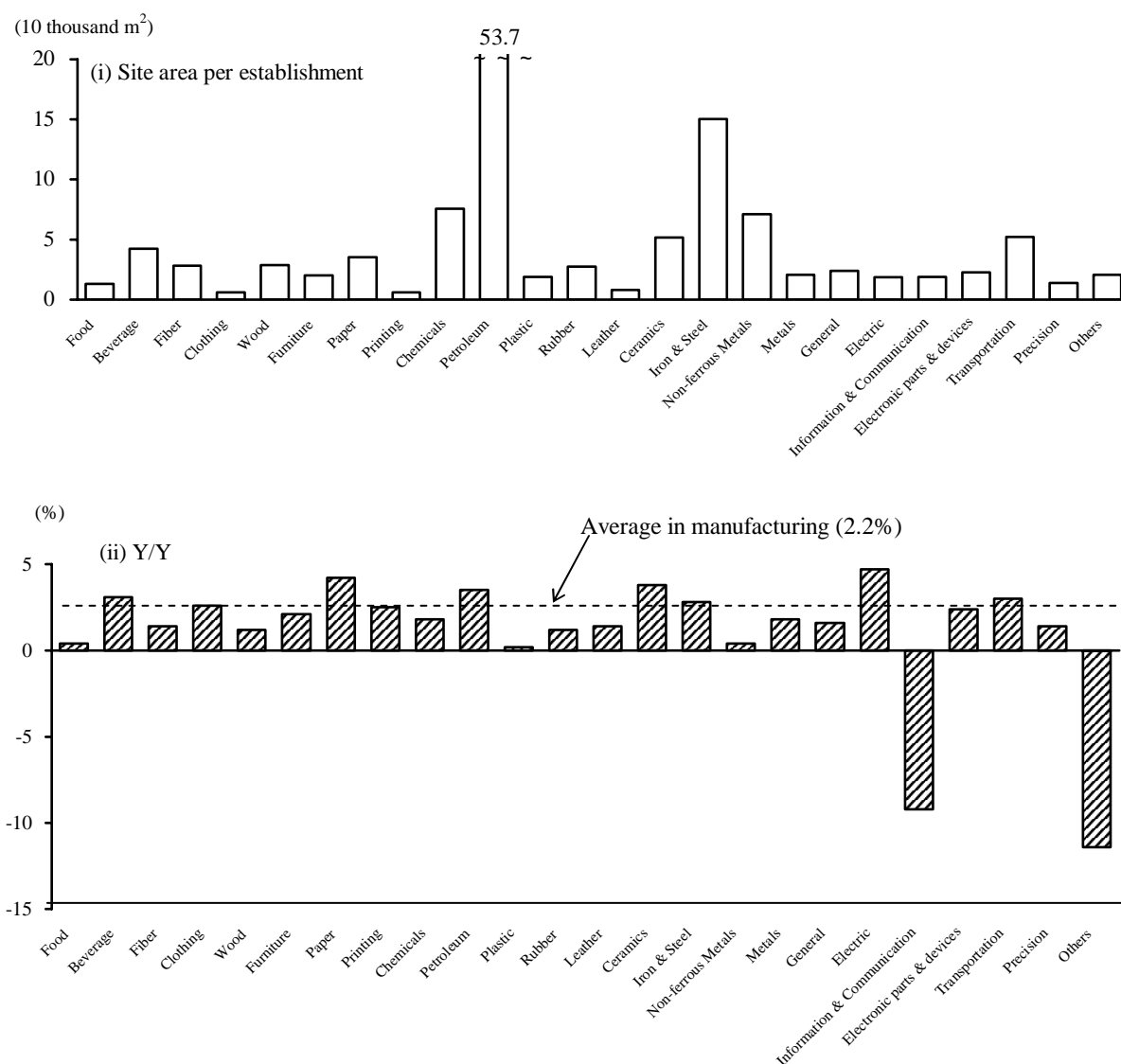


- (ii) Site area per establishment increased by 2.2% from the previous year to 30,146 m<sup>2</sup> (Table 2).

Looking at this site area by industry, that of “petroleum and coal products” (536,697 m<sup>2</sup>) was the largest by far, followed by “iron and steel” (150,385 m<sup>2</sup>), “chemical and allied products” (75,582 m<sup>2</sup>) and “non-ferrous metals and products” (71,028 m<sup>2</sup>), showing that equipment-related industries account for the top ranks (Table 2, Figure 3).

By year-on-year comparison ratio, the site area increased in 22 industries including “electrical machinery, equipment and supplies” (up 4.7% compared to the previous year), “pulp, paper and paper products” (up 4.2% id.), “ceramic, stone and clay products” (up 3.8% id.) and “petroleum and coal products” (up 3.5% id.). It decreased in 2 industries of “miscellaneous manufacturing industries” (down 11.4% id.) and “information and communication electronics equipment” (down 9.2% id.).

**Figure 3 Site area per establishment by industry**  
(Establishments with 30 or more employees)



**Table 2 Number of establishments and site area by industry**  
(Establishments with 30 or more employees)

Industry	Number of establishments			Site area			Site area per establishment	
	2002			2002			2002	
		Y/Y (%)	Composition ratio (%)	(1,000m <sup>2</sup> )	Y/Y (%)	Composition ratio (%)	(m <sup>2</sup> )	Y/Y (%)
Total	47,046	-3.7	100.0	1,418,233	-1.6	100.0	30,146	2.2
09 Food	7,262	-1.5	15.4	94,408	-1.1	6.7	13,000	0.4
10 Beverages, tobacco and feed	705	-1.0	1.5	29,883	2.1	2.1	42,387	3.1
11 Textile mill products	1,001	-7.9	2.1	28,040	-6.6	2.0	28,012	1.4
12 Apparel and other finished products	2,129	-11.5	4.5	12,193	-9.2	0.9	5,727	2.6
13 Lumber and wood products	683	-6.2	1.5	19,486	-5.1	1.4	28,530	1.2
14 Furniture and fixtures	690	-8.4	1.5	13,825	-6.4	1.0	20,036	2.1
15 Pulp, paper and paper products	1,643	-3.1	3.5	57,745	1.0	4.1	35,146	4.2
16 Printing and allied industries	2,373	-0.9	5.0	13,598	1.5	1.0	5,730	2.5
17 Chemical and allied products	2,154	-1.5	4.6	162,804	0.3	11.5	75,582	1.8
18 Petroleum and coal products	95	-5.9	0.2	50,986	-2.6	3.6	536,697	3.5
19 Plastic products	2,936	-0.1	6.2	55,777	0.2	3.9	18,998	0.2
20 Rubber products	631	-2.6	1.3	17,224	-1.4	1.2	27,296	1.2
21 Leather tanning, leather products and fur skins	185	-9.8	0.4	1,467	-8.5	0.1	7,929	1.4
22 Ceramic, stone and clay products	1,905	-7.7	4.0	98,095	-4.2	6.9	51,493	3.8
23 Iron and steel	1,147	-4.1	2.4	172,491	-1.4	12.2	150,385	2.8
24 Non-ferrous metals and products	774	-0.5	1.6	54,975	-0.1	3.9	71,028	0.4
25 Fabricated metal products	4,039	-2.0	8.6	82,573	-0.2	5.8	20,444	1.8
26 General machinery	5,219	-4.1	11.1	125,507	-2.5	8.8	24,048	1.6
27 Electrical machinery, equipment and supplies	3,239	-8.7	6.9	59,875	-4.5	4.2	18,486	4.7
28 Information and communication electronics equipment	1,073	-5.4	2.3	20,276	-14.1	1.4	18,897	-9.2
29 Electronic parts and devices	2,191	-4.1	4.7	49,527	-1.8	3.5	22,605	2.4
30 Transportation equipment	3,191	-0.0	6.8	166,810	2.9	11.8	52,275	3.0
31 Precision instruments and machinery	895	-5.0	1.9	12,471	-3.7	0.9	13,934	1.4
32 Miscellaneous manufacturing industries	886	-5.7	1.9	18,197	-16.5	1.3	20,539	-11.4

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

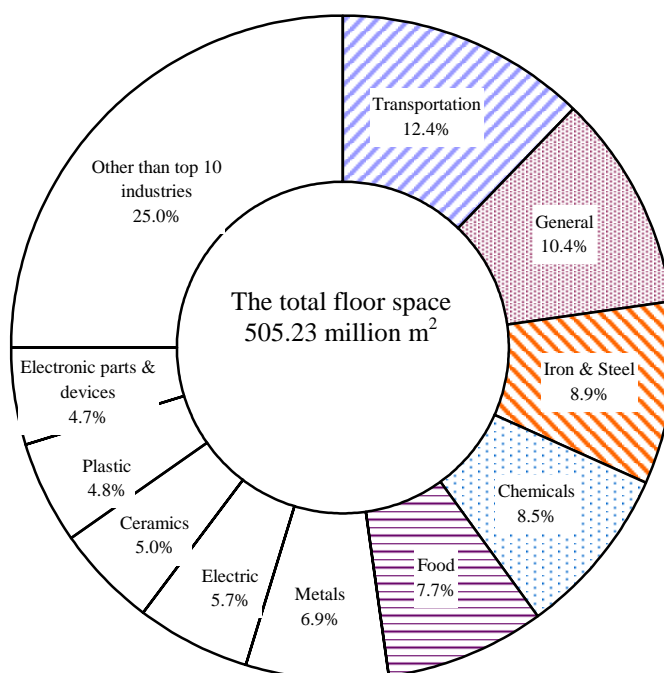
## (2) Total floor space

- (i) The total floor space was 505.23 million m<sup>2</sup>, down 1.1% from the previous year (Table 1).

Comparing the space by industry, the industries with large space are “transportation equipment” (62.41 million m<sup>2</sup>, composition ratio 12.4%), “general machinery” (52.41 million m<sup>2</sup>, 10.4% id.), “iron and steel” (44.83 million m<sup>2</sup>, 8.9% id.), “chemical and allied products” (42.81 million m<sup>2</sup>, 8.5% id.), “food” (39.02 million m<sup>2</sup>, 7.7% id.) and “fabricated metal products” (34.91 million m<sup>2</sup>, 6.9% id.) (Table 3, Figure 4).

By year-on-year comparison ratio, it has declined in 17 industries including “information and communication electronics equipment” (down 14.6% compared to the previous year), “general machinery” (down 2.5% id.), “ceramic, stone and clay products” (down 4.0% id.) and “textile mill products” (down 6.0% id.). It has increased in 7 industries including “non-ferrous metals and products” (up 4.8% id.), “transportation equipment” (up 0.9% id.), “beverages, tobacco and feed” (up 2.2% id.) and “printing and allied industries” (up 2.4% id.).

**Figure 4 Composition ratio of total floor space by industry**  
(Establishments with 30 or more employees)

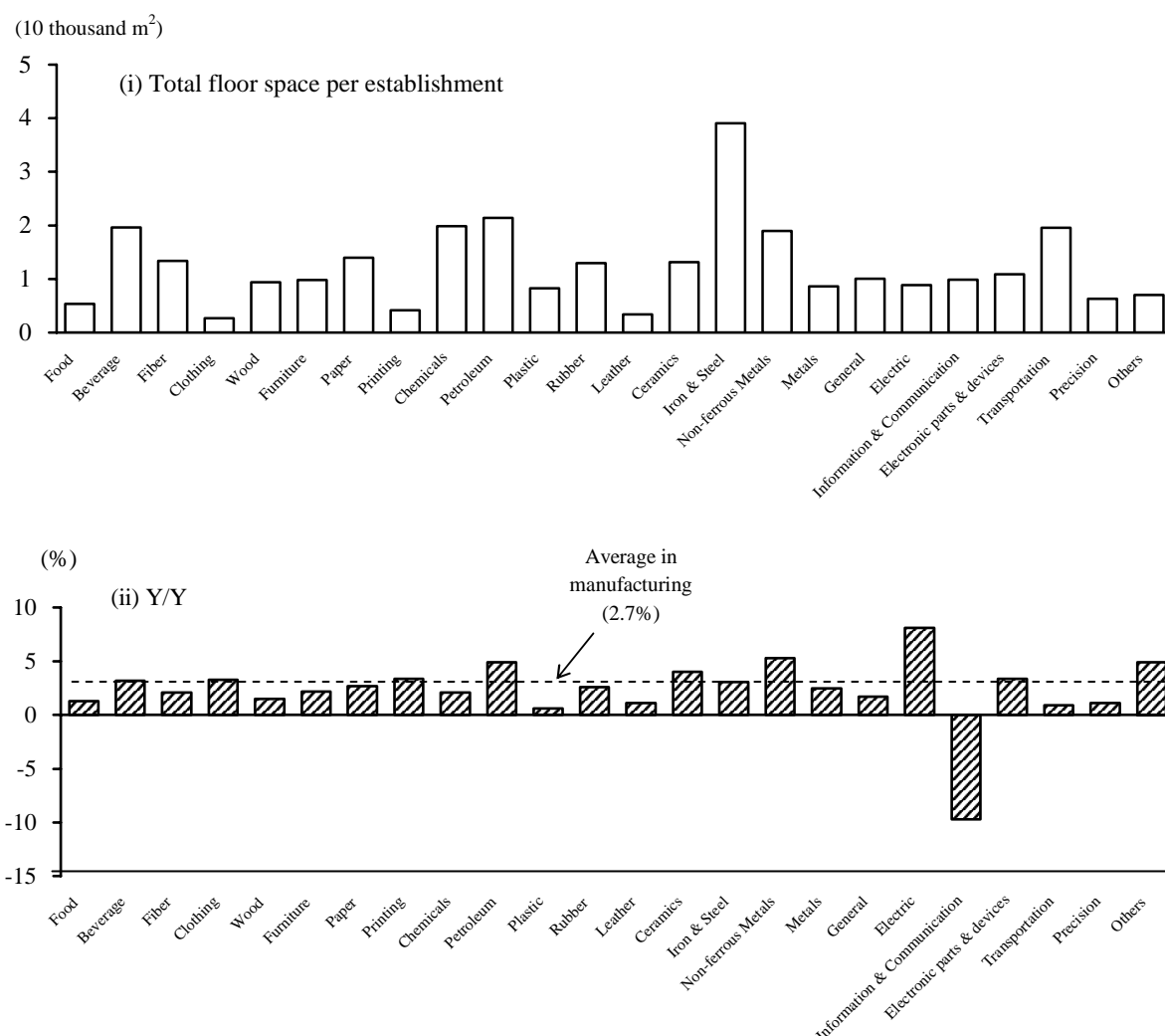


- (ii) The total floor space per establishment was 10,739 m<sup>2</sup>, down 2.7% from the previous year (Table 3).

By industry, “iron and steel” has the largest space (39,080 m<sup>2</sup>), followed by “petroleum and coal products” (21,385 m<sup>2</sup>), “chemical and allied products” (19,876 m<sup>2</sup>), “beverages, tobacco and feed” (19,595 m<sup>2</sup>) and “transportation equipment” (19,557 m<sup>2</sup>) (Table 3, Figure 5).

By ratio compared to the previous year, there is an increase in 23 industries including “electrical machinery, equipment and supplies” (up 8.1% compared to the previous year), “non-ferrous metals and products (up 5.3% id.), “petroleum and coal products” and “miscellaneous manufacturing industries” (both up 4.9% id.), and there is a decrease in “information and communication electronics equipment” (down 9.7% id.).

**Figure 5 Total floor space per establishment by industry**  
(Establishments with 30 or more employees)

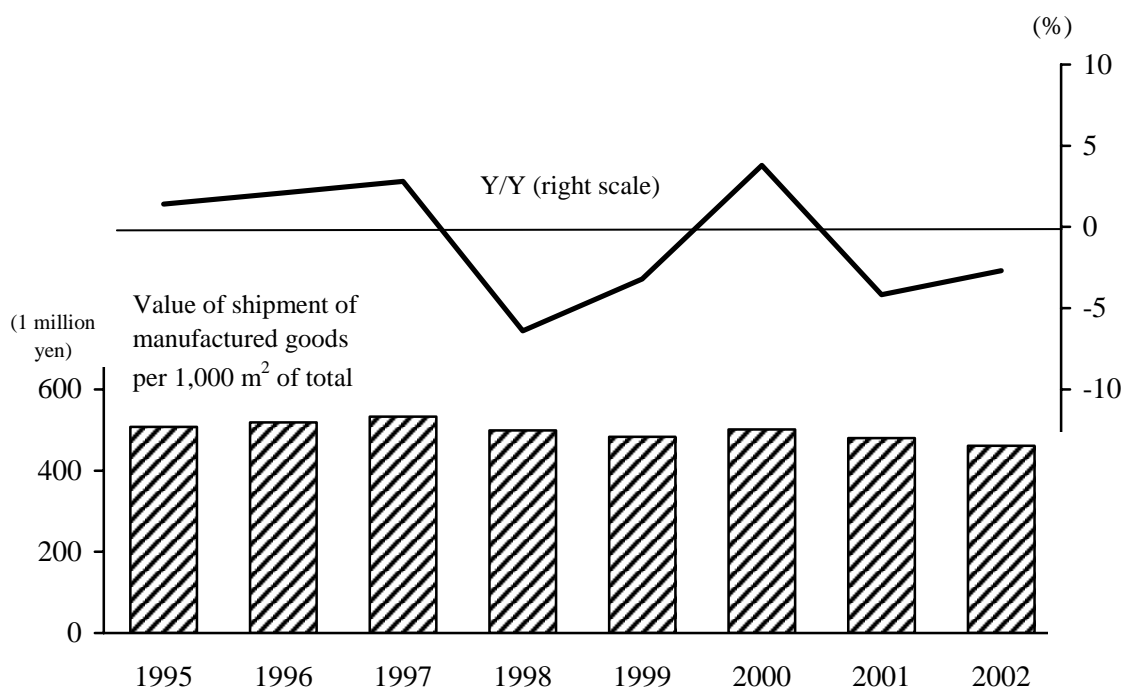


(iii) The value of shipment of manufactured goods per 1,000 m<sup>2</sup> of total floor space was 461.64 million yen and decreased by 2.7% compared to the previous year (Table 3, Figure 6).

By industry, the value of shipment in “petroleum and coal products” (4.48767 billion yen) is the highest by far, followed by “information and communication electronics equipment” (1.14261billion yen), “transportation equipment” (746.78 million yen), “beverages, tobacco and feed” (690.8 million yen) and “electronic parts and devices” (649.95 million yen).

When observing year-on-year comparison ratios, there is a decline in 21 industries including “information and communication electronics equipment” (down 10.0% compared to the previous year), “non-ferrous metals and products” (down 7.5% id.), “electronic parts and devices” (down 7.2% id.), “precision instruments and machinery” (down 7.0% id.) and “leather tanning, leather products and fur skins” (down 6.9% id.). There is an increase in 3 industries including “transportation equipment” (up 5.7% id.), “rubber products” (up 1.2% id.) and “petroleum and coal products” (up 1.1% id.).

**Figure 6 Transition in value of shipment of manufactured goods per 1,000 m<sup>2</sup> of total floor space**  
(Establishments with 30 or more employees)



**Table 3 Number of establishments, floor space and total floor space by industry**  
(Establishments with 30 or more employees)

Industry	Number of establishments			Floor space		
	2002	2002		2002	2002	
		Y/Y (%)	Composition ratio (%)		Y/Y (%)	Composition ratio (%)
Total	47,046	-3.7	100.0	377,166	-1.5	100.0
09 Food	7,262	-1.5	15.4	27,168	-1.1	7.2
10 Beverages, tobacco and feed	705	-1.0	1.5	9,753	1.6	2.6
11 Textile mill products	1,001	-7.9	2.1	11,045	-6.3	2.9
12 Apparel and other finished products	2,129	-11.5	4.5	4,022	-9.2	1.1
13 Lumber and wood products	683	-6.2	1.5	5,689	-5.3	1.5
14 Furniture and fixtures	690	-8.4	1.5	4,877	-7.0	1.3
15 Pulp, paper and paper products	1,643	-3.1	3.5	17,075	-0.8	4.5
16 Printing and allied industries	2,373	-0.9	5.0	5,399	1.8	1.4
17 Chemical and allied products	2,154	-1.5	4.6	28,130	0.7	7.5
18 Petroleum and coal products	95	-5.9	0.2	1,554	-1.3	0.4
19 Plastic products	2,936	-0.1	6.2	18,275	0.8	4.8
20 Rubber products	631	-2.6	1.3	6,424	-0.5	1.7
21 Leather tanning, leather products and fur skins	185	-9.8	0.4	423	-10.6	0.1
22 Ceramic, stone and clay products	1,905	-7.7	4.0	19,951	-4.7	5.3
23 Iron and steel	1,147	-4.1	2.4	39,616	-1.0	10.5
24 Non-ferrous metals and products	774	-0.5	1.6	12,196	2.4	3.2
25 Fabricated metal products	4,039	-2.0	8.6	28,484	0.7	7.6
26 General machinery	5,219	-4.1	11.1	40,380	-2.9	10.7
27 Electrical machinery, equipment and supplies	3,239	-8.7	6.9	19,228	-1.7	5.1
28 Information and communication electronics equipment	1,073	-5.4	2.3	6,021	-14.0	1.6
29 Electronic parts and devices	2,191	-4.1	4.7	13,236	-2.4	3.5
30 Transportation equipment	3,191	-0.0	6.8	50,289	0.5	13.3
31 Precision instruments and machinery	895	-5.0	1.9	3,571	-6.1	0.9
32 Miscellaneous manufacturing industries	886	-5.7	1.9	4,359	-2.4	1.2

**Table 3 (Continued)**

Industry	Total floor space			Total floor space per establishment		Value of shipment of manufactured goods per 1,000 m <sup>2</sup> of total floor space	
	2002			2002		2002	
	(1,000m <sup>2</sup> )	Y/Y (%)	Composition ratio (%)	(m <sup>2</sup> )	Y/Y (%)	(10 thousand yen)	Y/Y (%)
Total	505,230	-1.1	100.0	10,739	2.7	46,164	-2.7
09 Food	39,024	-0.2	7.7	5,374	1.3	47,867	-1.2
10 Beverages, tobacco and feed	13,814	2.2	2.7	19,595	3.2	69,080	-4.4
11 Textile mill products	13,403	-6.0	2.7	13,390	2.1	12,298	-4.0
12 Apparel and other finished products	5,698	-8.6	1.1	2,677	3.3	25,262	-3.7
13 Lumber and wood products	6,418	-4.8	1.3	9,397	1.5	20,781	-1.7
14 Furniture and fixtures	6,762	-6.3	1.3	9,800	2.2	19,324	-5.4
15 Pulp, paper and paper products	22,919	-0.5	4.5	13,950	2.7	26,408	-4.6
16 Printing and allied industries	9,878	2.4	2.0	4,163	3.4	53,013	-6.1
17 Chemical and allied products	42,812	0.5	8.5	19,876	2.1	49,815	-2.4
18 Petroleum and coal products	2,032	-1.4	0.4	21,385	4.9	448,767	1.1
19 Plastic products	24,339	0.5	4.8	8,290	0.6	30,636	-2.9
20 Rubber products	8,194	-0.1	1.6	12,986	2.6	30,521	1.2
21 Leather tanning, leather products and fur skins	624	-8.8	0.1	3,374	1.1	35,472	-6.9
22 Ceramic, stone and clay products	25,044	-4.0	5.0	13,146	4.0	18,429	-5.3
23 Iron and steel	44,825	-1.1	8.9	39,080	3.1	22,097	-0.3
24 Non-ferrous metals and products	14,676	4.8	2.9	18,962	5.3	34,965	-7.5
25 Fabricated metal products	34,905	0.4	6.9	8,642	2.5	26,343	-4.2
26 General machinery	52,411	-2.5	10.4	10,042	1.7	40,647	-6.8
27 Electrical machinery, equipment and supplies	28,764	-1.4	5.7	8,881	8.1	56,894	-4.9
28 Information and communication electronics equipment	10,612	-14.6	2.1	9,890	-9.7	114,261	-10.0
29 Electronic parts and devices	23,776	-0.9	4.7	10,851	3.4	64,995	-7.2
30 Transportation equipment	62,406	0.9	12.4	19,557	0.9	74,678	5.7
31 Precision instruments and machinery	5,651	-4.0	1.1	6,314	1.1	54,792	-7.0
32 Miscellaneous manufacturing industries	6,242	-1.1	1.2	7,045	4.9	57,296	-0.3

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

## 2. Situation by size of employees

In 2002, establishments with 199 or less persons account for about 90 % of all establishments with 30 or more employees. In site area and floor space, establishments with 50 to 99 persons, 100 to 199 persons and 1,000 or more persons take up nearly 20% respectively and other establishment sizes take up around 10% (Table 4).

The more the size of employees is, the larger the site area and total floor space per establishment are. The value of shipment of manufactured goods per 1,000 m<sup>2</sup> of total floor space shows the same trend.

Observing the space by size of employees compared to the previous year, the site area per establishment indicates higher numbers in all establishments except those with 200 to 299 and 500 to 999 persons and the total floor space per establishment shows higher numbers in all establishments except those with 200 to 299 persons. The value of shipment of manufactured goods per 1,000 m<sup>2</sup> of total floor space was below the number of the previous year in all establishments except those with 200 to 299 and 1,000 or more persons.



**Table 4 Number of establishments, site area, floor space and total floor space by size of employees**  
(Establishments with 30 or more employees)

Size of employees (Persons)	Number of establishments			Site area			Site area per establishment	
	2002			2002			2002	
		Y/Y (%)	Composition ratio (%)	(1,000m <sup>2</sup> )	Y/Y (%)	Composition ratio (%)	( m <sup>2</sup> )	Y/Y (%)
Total	47,046	-3.7	100.0	1,418,233	-1.6	100.0	30,146	2.2
30 to 49	17,203	-4.3	36.6	148,850	-3.4	10.5	8,653	1.0
50 to 99	16,281	-3.7	34.6	245,432	-1.1	17.3	15,075	2.6
100 to 199	7,982	-3.2	17.0	263,902	2.3	18.6	33,062	5.7
200 to 299	2,366	-3.3	5.0	147,162	-5.5	10.4	62,199	-2.2
300 to 499	1,762	1.3	3.7	191,826	7.7	13.5	108,868	6.3
500 to 999	986	-6.7	2.1	162,985	-6.9	11.5	165,299	-0.2
1000 or more	466	-7.7	1.0	258,075	-5.1	18.2	553,810	2.8

Size of employees (Persons)	Floor space			Total floor space			Total floor space per establishment	
	2002			2002			2002	
	(1,000m <sup>2</sup> )	Y/Y (%)	Composition ratio (%)	(1,000m <sup>2</sup> )	Y/Y (%)	Composition ratio (%)	(m <sup>2</sup> )	Y/Y (%)
Total	377,166	-1.5	100.0	505,230	-1.1	100.0	10,739	2.7
30 to 49	43,435	-1.7	11.5	54,807	-1.4	10.8	3,186	3.1
50 to 99	71,718	-0.5	19.0	91,552	-0.2	18.1	5,623	3.6
100 to 199	71,449	1.3	18.9	93,620	1.2	18.5	11,729	4.5
200 to 299	37,353	-4.6	9.9	50,426	-3.9	10.0	21,313	-0.6
300 to 499	42,597	6.8	11.3	58,836	6.4	11.6	33,392	5.0
500 to 999	41,457	-7.6	11.0	59,821	-5.4	11.8	60,671	1.4
1000 or more	69,158	-4.1	18.3	96,167	-4.1	19.0	206,367	4.0

Size of employees (Persons)	Value of shipment of manufactured goods per 1,000 m <sup>2</sup> of total floor space	
	2002	
	(10 thousand yen)	Y/Y (%)
Total	46,164	-2.7
30 to 49	25,772	-5.9
50 to 99	32,078	-3.7
100 to 199	37,104	-4.8
200 to 299	46,439	2.4
300 to 499	54,697	-7.1
500 to 999	56,839	-1.3
1000 or more	68,009	0.6

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

## II. Industrial Water

The daily volume of industrial water (hereinafter referred to as “volume of water”) used at establishments engaged in manufacturing with 30 or more employees in 2002 was 189.77 million m<sup>3</sup> (down 0.3% compared to the previous year). Of all the volume, fresh water was 147.02 million m<sup>3</sup> (down 1.0% id., composition ratio 77.5%) and seawater was 42.75 million m<sup>3</sup> (flat compared to the previous year, 22.5% id.) (Table 5).

The recycling rate of fresh water (ratio of recycled water of the total volume of fresh water) was 79.0%, an increase by 0.4% in the total manufacturing (Table 5, Figure 7).

**Table 5 Transition in volume of industrial water and fresh water by water resource and usage**  
(Establishments with 30 or more employees)

Yearly	Number of establishments		Total		Volume of water						Total volume of seawater		
					Total volume of fresh water			Recycling rate of fresh water					
	Y/Y	(1,000 m <sup>3</sup> /day)	Y/Y	(1,000 m <sup>3</sup> /day)	Y/Y	Composi- tion ratio	( % )	Diff. compared to the prev. yr.	(1,000 m <sup>3</sup> /day)	Y/Y	Compo- sition ratio		
												(%)	(%)
1995	56,284	-1.8	189,644	1.0	148,146	0.3	78.1	77.2	0.3	41,499	3.4	21.9	
1996	55,533	-1.3	190,369	0.4	148,943	0.5	78.2	77.4	0.2	41,426	-0.2	21.8	
1997	55,386	-0.3	195,060	2.5	152,124	2.1	78.0	77.9	0.5	42,936	3.6	22.0	
1998	54,518	-4.1	193,803	-0.7	151,166	-0.7	78.0	78.0	0.1	42,636	-0.7	22.0	
1999	52,469	-3.8	192,244	-0.8	150,277	-0.6	78.2	78.1	0.1	41,967	-1.6	21.8	
2000	51,434	-2.0	194,952	1.4	151,965	1.1	77.9	78.6	0.5	42,988	9.6	22.1	
2001	49,364	-4.0	190,547	-2.3	147,978	-2.6	77.7	78.6	0.0	42,569	-1.0	22.3	
2002	47,046	-3.7	189,774	-0.3	147,021	-0.5	77.5	79.0	0.4	42,753	0.0	22.5	

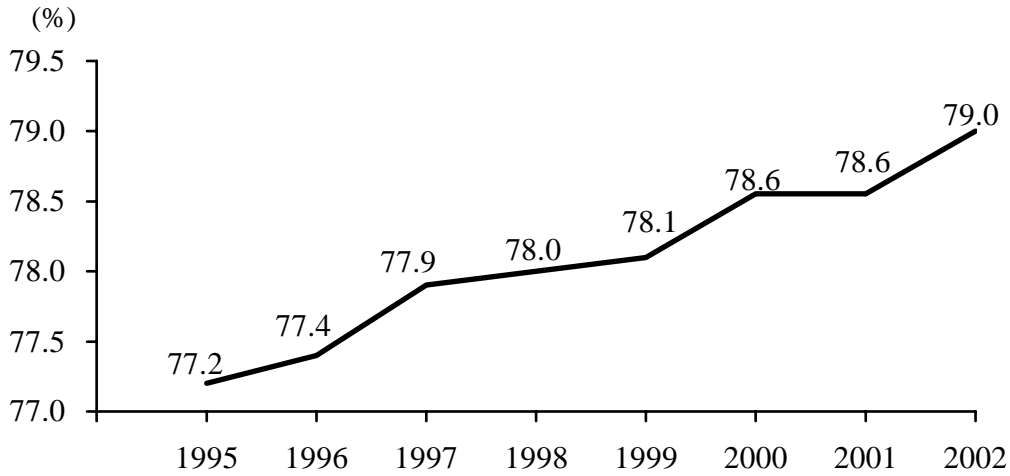
Yearly	Volume of fresh water by water resource									
	Public water				Well water		Other fresh water		Recycled water	
	Industrial waterworks		Waterworks							
	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)
1995	12,414	1.4	2,450	1.4	9,654	-2.9	9,324	-2.7	114,304	0.7
1996	12,647	1.9	2,459	0.4	9,416	-2.5	9,174	-1.6	115,247	0.8
1997	12,981	2.6	2,412	-1.9	9,253	-1.7	9,031	-1.6	118,447	2.8
1998	12,953	-0.3	2,315	-5.8	8,967	-3.8	9,090	0.7	117,842	-0.5
1999	12,751	-1.6	2,371	2.4	8,677	-3.2	9,057	-0.4	117,421	-0.4
2000	12,833	0.6	2,234	-5.7	8,537	-1.6	8,987	-0.8	119,373	1.7
2001	12,652	-1.4	2,105	-5.8	8,252	-3.3	8,732	-2.8	116,238	-2.6
2002	12,449	-1.6	2,072	-1.0	8,007	-2.9	8,286	-5.1	116,206	0.1

Yearly	Volume of fresh water by usage									
	Boiler feed water		Raw material water		Product processing and washing water		Cooling and temperature-controlling water		Other fresh water	
	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)
1995	1,868	-0.8	587	8.1	25,501	-1.1	113,073	0.7	7,117	0.0
1996	1,881	0.7	579	-1.4	25,387	-0.4	115,969	2.6	5,127	-28.0
1997	1,902	1.1	588	1.5	25,633	1.0	118,813	2.5	5,188	1.2
1998	1,869	-2.1	526	-12.1	25,580	-0.5	118,002	-0.7	5,190	-0.4
1999	1,860	-0.5	542	3.1	25,315	-1.0	117,618	-0.3	4,941	-4.8
2000	1,857	-0.2	544	0.4	25,409	0.4	119,239	1.4	4,915	-0.5
2001	1,791	-3.6	547	0.5	24,836	-2.3	115,961	-2.7	4,843	-1.5
2002	1,765	-1.4	527	-3.7	24,731	-0.4	115,191	-0.5	4,808	-0.6

Note 1: Because of the adjustment of establishments in the 1998 survey, the year-on-year comparison is based on a time series.

Note 2: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

**Figure 7 Transition in recycling rate of fresh water**  
(Establishments with 30 or more employees)



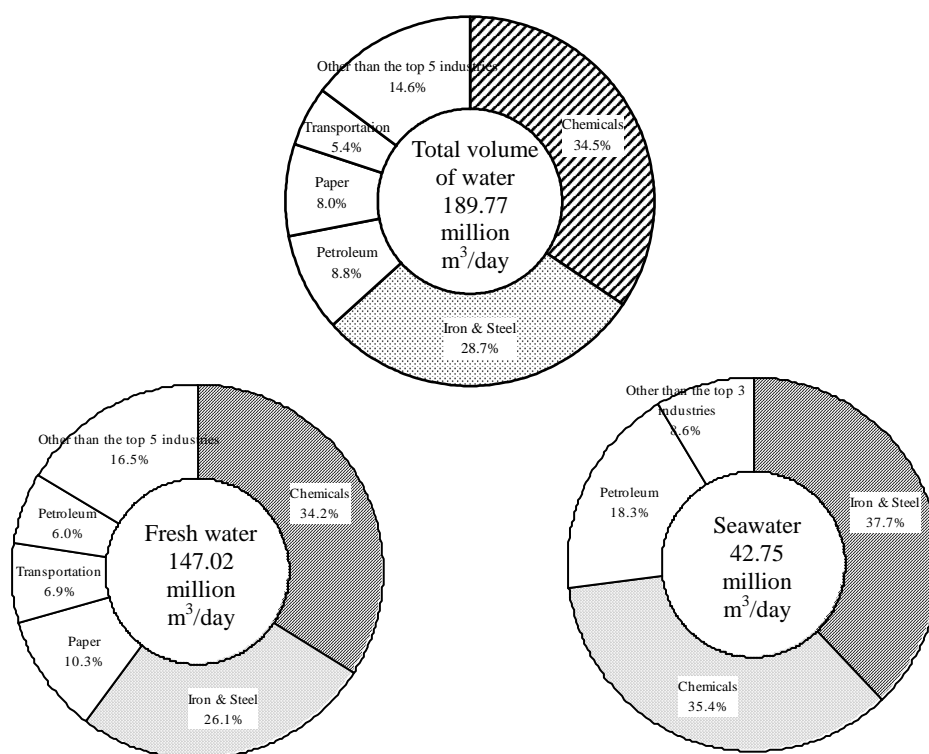
## 1. Situation by industry

### (1) Total volume of water

- (i) Observing the volume of water by industry, the top 2 industries of “chemical and allied products” (65.41 million m<sup>3</sup>, composition ratio 34.5%) and “iron and steel” (54.5 million m<sup>3</sup>, 28.7% id.) account for more than 60%, followed by “petroleum and coal products” (16.7 million m<sup>3</sup>, 8.8% id.), “pulp, paper and paper products” (15.14 million m<sup>3</sup>, 8.0% id.) and “transportation equipment” (10.17 million m<sup>3</sup>, 5.4% id.). These 5 industries account for about 85% in the use of industrial water (Table 6, Figure 8).

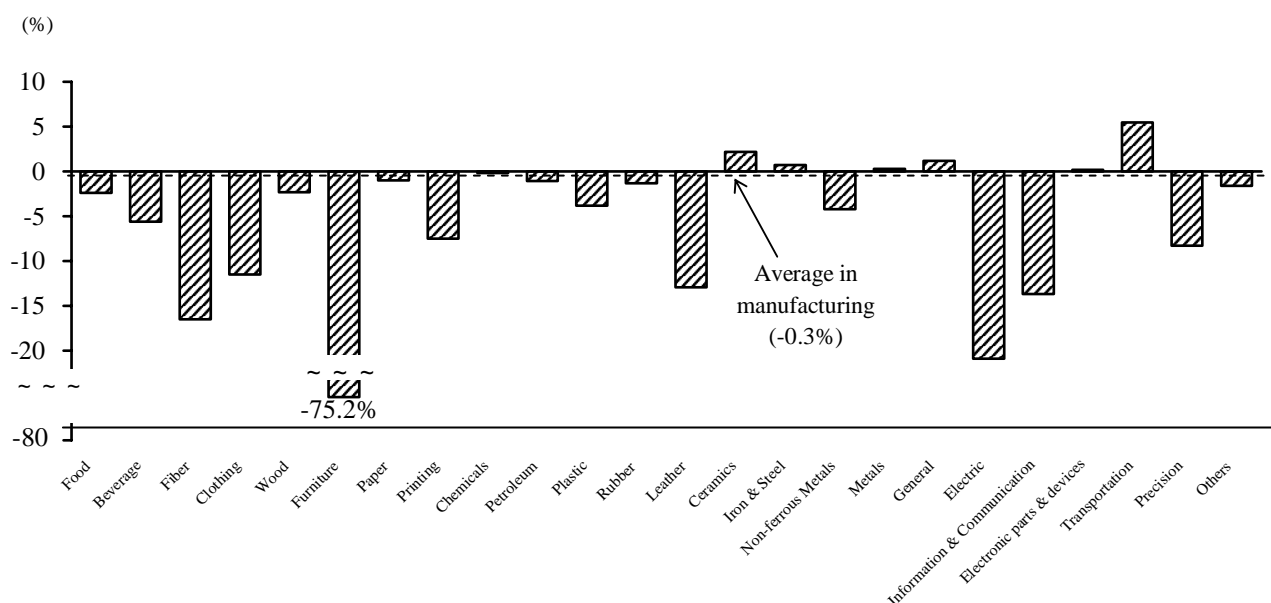
The order of the industries using much fresh water is “chemical and allied products” (50.25 million m<sup>3</sup>, composition ratio in fresh water 34.2%), “iron and steel” (38.4 million m<sup>3</sup>, 26.1% id.), “pulp, paper and paper products” (15.1 million m<sup>3</sup>, 10.3% id.), “transportation equipment” (10.09 million m<sup>3</sup>, 6.9%) and “petroleum and coal products” (8.85 million m<sup>3</sup>, 6.0% id.). The 3 industries using much seawater are “iron and steel” (16.10 million m<sup>3</sup>, composition ratio in seawater 37.7%), “chemical and allied products” (15.15 million m<sup>3</sup>, 35.4% id.) and “petroleum and coal products” (7.84 million m<sup>3</sup>, 18.3% id.), accounting for about 90% in the use of the seawater.

**Figure 8 Composition ratio of volume of water by industry**  
(Establishments with 30 or more employees)



The year-on-year comparison ratio in the top 5 industries using much volume of water was down 0.2% compared to the previous year in “chemical and allied products”, up 0.7% in “iron and steel”, down 1.1% in “petroleum and coal products”, down 1.0% in “pulp, paper and paper products” and up 5.5% in “transportation equipment”.

**Figure 9 Year-on-year comparison ratio of volume of water by industry**  
(Establishments with 30 or more employees)



- (ii) The volume of fresh water which accounts for nearly 80% of industrial water was 147.02 million m<sup>3</sup>, down 0.5% from the previous year (Table 6).

The year-on-year comparison ratio in the top 5 industries using much volume of water was down 0.9% compared to the previous year in “chemical and allied products”, down 0.2% in “iron and steel”, down 1.0% in “pulp, paper and paper products”, up 5.2% in “transportation equipment and down 0.8% in “petroleum and coal products”.

The industry using the highest volume of fresh water per establishment was “petroleum and coal products” which was 93,175 m<sup>3</sup>, followed by “iron and steel” (33,479 m<sup>3</sup>) and “chemical and allied products” (23,330 m<sup>3</sup>).

**Table 6 Volume of water by industry**  
(Establishments with 30 or more employees)

Industry	Number of establishments			Total volume of water			Volume of water per establishment	
	2002		Composition ratio (%)	2002		Composition ratio (%)	2002	
		Y/Y (%)		(1,000 m <sup>3</sup> /day)	Y/Y (%)		(m <sup>3</sup> /day)	Y/Y (%)
Total	47,046	-3.7	100.0	189,774	-0.3	100.0	4,034	3.5
09 Food	7,262	-1.5	15.4	5,172	-2.4	2.7	712	-1.0
10 Beverages, tobacco and feed	705	-1.0	1.5	1,032	-5.6	0.5	1,464	-4.6
11 Textile mill products	1,001	-7.9	2.1	1,399	-16.5	0.7	1,398	-9.3
12 Apparel and other finished products	2,129	-11.5	4.5	76	-11.5	0.0	36	0.8
13 Lumber and wood products	683	-6.2	1.5	53	-2.3	0.0	77	3.9
14 Furniture and fixtures	690	-8.4	1.5	34	-75.2	0.0	50	-72.7
15 Pulp, paper and paper products	1,643	-3.1	3.5	15,144	-1.0	8.0	9,217	2.2
16 Printing and allied industries	2,373	-0.9	5.0	100	-7.5	0.1	42	-7.1
17 Chemical and allied products	2,154	-1.5	4.6	65,405	-0.2	34.5	30,365	1.3
18 Petroleum and coal products	95	-5.9	0.2	16,695	-1.1	8.8	175,741	5.1
19 Plastic products	2,936	-0.1	6.2	2,434	-3.8	1.3	829	-3.7
20 Rubber products	631	-2.6	1.3	936	-1.3	0.5	1,484	1.3
21 Leather tanning, leather products and fur skins	185	-9.8	0.4	11	-12.9	0.0	59	-2.9
22 Ceramic, stone and clay products	1,905	-7.7	4.0	4,951	2.2	2.6	2,599	10.8
23 Iron and steel	1,147	-4.1	2.4	54,502	0.7	28.7	47,517	5.0
24 Non-ferrous metals and products	774	-0.5	1.6	3,769	-4.2	2.0	4,869	-3.7
25 Fabricated metal products	4,039	-2.0	8.6	960	0.3	0.5	238	2.5
26 General machinery	5,219	-4.1	11.1	1,470	1.2	0.8	282	5.6
27 Electrical machinery, equipment and supplies	3,239	-8.7	6.9	884	-20.9	0.5	273	-13.3
28 Information and communication electronics equipment	1,073	-5.4	2.3	535	-13.7	0.3	499	-8.7
29 Electronic parts and devices	2,191	-4.1	4.7	3,655	0.2	1.9	1,668	4.5
30 Transportation equipment	3,191	-0.0	6.8	10,174	5.5	5.4	3,188	5.5
31 Precision instruments and machinery	895	-5.0	1.9	127	-8.3	0.1	142	-3.8
32 Miscellaneous manufacturing industries	886	-5.7	1.9	254	-1.6	0.1	286	4.3

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

**Table 6 (Continued)**

Industry	Fresh water			Volume of fresh water per establishment		Seawater		
	2002			2002		2002		
	(1,000 m <sup>3</sup> /day)	Y/Y (%)	Composition ratio (%)	(m <sup>3</sup> /day)	Y/Y (%)	(1,000 m <sup>3</sup> /day)	Y/Y (%)	Composition ratio (%)
Total	147,021	-0.5	100.0	3,125	3.3	42,753	0.4	100.0
09 Food	4,242	0.4	2.9	584	1.9	930	-13.6	2.2
10 Beverages, tobacco and feed	1,023	-5.5	0.7	1,450	-4.6	10	-8.3	0.0
11 Textile mill products	1,398	-16.4	1.0	1,396	-9.2	1	-63.4	0.0
12 Apparel and other finished products	76	-11.5	0.1	36	0.0	-	-	-
13 Lumber and wood products	53	-2.3	0.0	77	4.1	-	-	-
14 Furniture and fixtures	34	-75.2	0.0	50	-72.7	-	-	-
15 Pulp, paper and paper products	15,103	-1.0	10.3	9,192	2.2	41	22.3	0.1
16 Printing and allied industries	100	-7.5	0.1	42	-6.7	-	-	-
17 Chemical and allied products	50,253	-0.9	34.2	23,330	0.6	15,152	2.1	35.4
18 Petroleum and coal products	8,852	-0.8	6.0	93,175	5.4	7,844	-1.5	18.3
19 Plastic products	2,434	-3.8	1.7	829	-3.7	-	-	-
20 Rubber products	936	-1.3	0.6	1,484	1.3	-	-	-
21 Leather tanning, leather products and fur skins	11	-12.9	0.0	59	-3.3	-	-	-
22 Ceramic, stone and clay products	3,781	9.3	2.6	1,985	18.5	1,170	-15.5	2.7
23 Iron and steel	38,401	-0.2	26.1	33,479	4.1	16,101	2.9	37.7
24 Non-ferrous metals and products	2,425	-5.4	1.6	3,133	-4.9	1,344	-2.0	3.1
25 Fabricated metal products	960	0.3	0.7	238	2.6	-	-	-
26 General machinery	1,395	3.0	0.9	267	7.2	75	-23.7	0.2
27 Electrical machinery, equipment and supplies	884	-14.1	0.6	273	-5.9	-	-	-
28 Information and communication electronics equipment	535	-13.7	0.4	499	-8.8	-	-	-
29 Electronic parts and devices	3,655	0.2	2.5	1,668	4.5	-	-	-
30 Transportation equipment	10,090	5.2	6.9	3,162	5.3	84	46.3	0.2
31 Precision instruments and machinery	127	-8.3	0.1	142	-4.1	-	-	-
32 Miscellaneous manufacturing industries	254	-1.5	0.2	286	4.4	-	-	-

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

## (2) Volume of fresh water by water resource

In the volume of fresh water by water resource, recycled water (116.21 million m<sup>3</sup>, composition ratio 79.0%) accounts for nearly 80%. Industrial waterworks (12.45 million m<sup>3</sup>, 8.5% id.), other fresh water (8.29 million m<sup>3</sup>, 5.6% id.), well water (8.01 million m<sup>3</sup>, 5.4% id.) and waterworks (2.07 million m<sup>3</sup>, 1.4% id.) are following that (Tables 5 and 7, Figure 10).

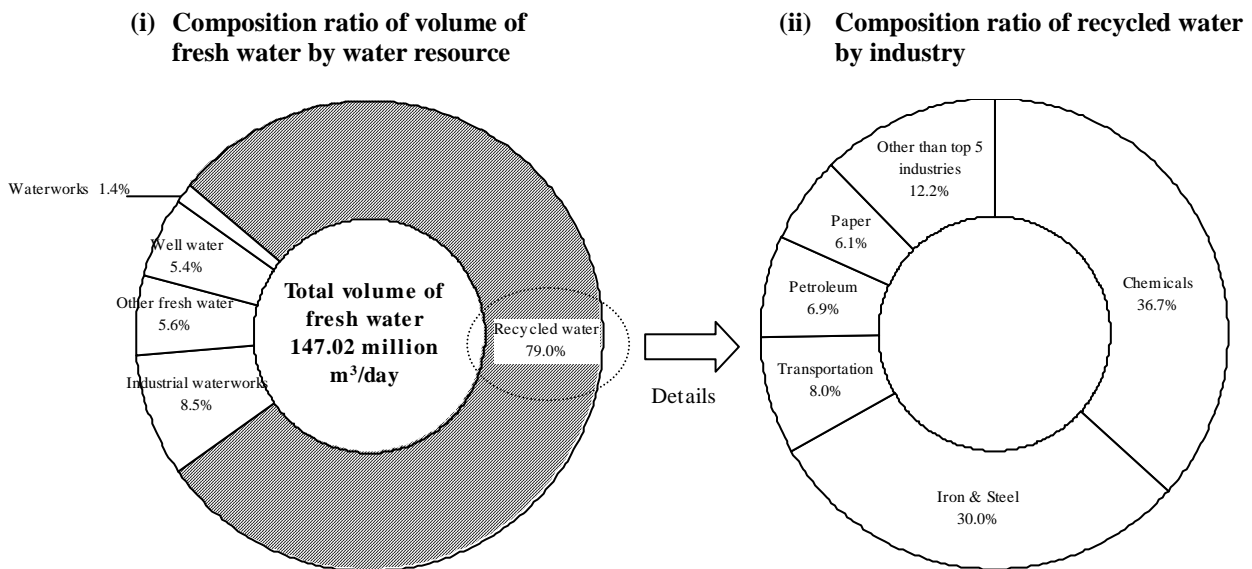
By year-on-year comparison ratio, while there is a decline in industrial water (down 1.6% compared to the previous water), waterworks (down 1.0% id.), well water (down 2.9% id.) and other fresh water (down 5.1% id.), there is a slight increase in recycled water (up 0.1% id.).

By industry,

- (i) “Chemical and allied products” (42.62 million m<sup>3</sup>, composition ratio in recycled water 36.7%) and “iron and steel” (34.81 million m<sup>3</sup>, 30.0% id.) utilize the most recycled water by far, followed by “transportation equipment” (9.34 million m<sup>3</sup>, 8.0% id.), “petroleum and coal products” (8.03 million m<sup>3</sup>, 6.9% id.) and “pulp, paper and paper products” (7.06 million m<sup>3</sup>, 6.1% id.). These top 5 industries utilize close to 90% of recycled water.

- (ii) The order of the industries using the industrial waterworks most is “chemical and allied products” (4.2 million m<sup>3</sup>, composition ratio in industrial waterworks 33.7%), “iron and steel” (2.84 million m<sup>3</sup>, 22.8% id.) and “pulp, paper and paper products” (2.33 million m<sup>3</sup>, 18.7% id.). These top 3 industries use more than 70% of industrial waterworks.
- (iii) In other fresh water, “pulp, paper and paper products” (4.49 million m<sup>3</sup>, composition ratio in other fresh water 54.2%) and “chemical and allied products” (1.91 million m<sup>3</sup>, 23.0% id.) are the top 2 industries, using about 80% of other fresh water.
- (iv) In well water, the order of industries using the well water most is “chemical and allied products” (1.34 million m<sup>3</sup>, composition ratio in well water 16.7%), “food” (1.31 million m<sup>3</sup>, 16.4% id.), “pulp, paper and paper products” (1.17 million m<sup>3</sup>, 14.6% id.) and “textile mill products” (830 thousand m<sup>3</sup>, 10.4% id.). These top 4 industries account for nearly 60% in the use of well water.
- (v) In waterworks, the order of industries using the waterworks most is “food” (470 thousand m<sup>3</sup>, composition ratio in waterworks 22.6%), “electronic parts and devices” (190 thousand m<sup>3</sup>, 9.3% id.), “chemical and allied products” (180 thousand m<sup>3</sup>, 8.8% id.), “transportation equipment” (160 thousand m<sup>3</sup>, 7.5% id.) and “general machinery” (130 thousand m<sup>3</sup>, 6.3% id.). These top 5 industries account for about 50% in the use of waterworks.

**Figure 10 Composition ratio of volume of fresh water by water resource and composition ratio of recycled water by industry**  
(Establishments with 30 or more employees)



**Table 7 Volume of fresh water by industry and water resource**  
(Establishments with 30 or more employees)

(Unit: 1,000 m<sup>3</sup>/day)

Industry	Industrial waterworks			Waterworks			Well water		
	2002			2002			2002		
		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)
Total	12,449	-1.6	100.0	2,072	-1.0	100.0	8,007	-2.9	100.0
09 Food	348	-5.5	2.8	469	5.3	22.6	1,309	2.8	16.4
10 Beverages, tobacco and feed	203	-7.6	1.6	127	1.9	6.1	422	-3.3	5.3
11 Textile mill products	204	-10.5	1.6	38	-1.8	1.8	833	-11.1	10.4
12 Apparel and other finished products	4	-46.2	0.0	18	-20.3	0.9	43	-2.3	0.5
13 Lumber and wood products	9	0.1	0.1	19	-0.8	0.9	12	-3.3	0.1
14 Furniture and fixtures	5	-7.5	0.0	9	-10.9	0.4	14	-23.7	0.2
15 Pulp, paper and paper products	2,331	0.6	18.7	50	26.3	2.4	1,167	-0.7	14.6
16 Printing and allied industries	7	-1.6	0.1	42	-5.7	2.0	32	-7.4	0.4
17 Chemical and allied products	4,201	-2.6	33.7	182	-4.2	8.8	1,340	-5.0	16.7
18 Petroleum and coal products	788	-0.7	6.3	10	-13.3	0.5	10	-26.1	0.1
19 Plastic products	115	-3.6	0.9	74	-0.3	3.6	514	-1.1	6.4
20 Rubber products	33	-5.7	0.3	20	-9.8	1.0	142	7.3	1.8
21 Leather tanning, leather products and fur skins	1	-23.6	0.0	2	-11.7	0.1	6	-16.5	0.1
22 Ceramic, stone and clay products	217	10.8	1.7	79	4.5	3.8	363	-12.4	4.5
23 Iron and steel	2,837	0.2	22.8	98	-8.0	4.7	165	-7.5	2.1
24 Non-ferrous metals and products	237	-7.5	1.9	51	8.5	2.4	202	3.5	2.5
25 Fabricated metal products	111	2.9	0.9	130	-0.1	6.3	220	5.2	2.7
26 General machinery	85	14.3	0.7	131	-7.3	6.3	205	0.5	2.6
27 Electrical machinery, equipment and supplies	88	-29.7	0.7	95	-12.0	4.6	186	2.7	2.3
28 Information and communication electronics equipment	23	-11.7	0.2	38	-16.0	1.8	30	-36.0	0.4
29 Electronic parts and devices	307	-5.0	2.5	192	2.4	9.3	431	0.9	5.4
30 Transportation equipment	287	3.4	2.3	156	1.9	7.5	278	-3.9	3.5
31 Precision instruments and machinery	5	-4.5	0.0	25	-27.8	1.2	57	-4.6	0.7
32 Miscellaneous manufacturing industries	5	-5.4	0.0	18	-10.2	0.9	29	-9.8	0.4

Industry	Other fresh water			Recycled water		
	2002			2002		
		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)
Total	8,286	-5.1	100.0	116,206	0.1	100.0
09 Food	519	4.3	6.3	1,596	-2.6	1.4
10 Beverages, tobacco and feed	42	-1.5	0.5	228	-11.7	0.2
11 Textile mill products	112	-35.7	1.4	212	-28.1	0.2
12 Apparel and other finished products	5	4.1	0.1	6	-20.0	0.0
13 Lumber and wood products	8	21.5	0.1	5	-27.2	0.0
14 Furniture and fixtures	0	24.4	0.0	6	-94.3	0.0
15 Pulp, paper and paper products	4,492	-7.2	54.2	7,063	2.5	6.1
16 Printing and allied industries	3	-15.9	0.0	17	-12.4	0.0
17 Chemical and allied products	1,907	-1.1	23.0	42,623	-0.5	36.7
18 Petroleum and coal products	15	-1.3	0.2	8,028	-0.8	6.9
19 Plastic products	187	0.9	2.3	1,545	-5.4	1.3
20 Rubber products	16	-33.9	0.2	726	-1.4	0.6
21 Leather tanning, leather products and fur skins	2	0.1	0.0	1	-6.5	0.0
22 Ceramic, stone and clay products	175	-12.3	2.1	2,946	14.5	2.5
23 Iron and steel	495	-0.3	6.0	34,805	-0.2	30.0
24 Non-ferrous metals and products	169	1.9	2.0	1,767	-7.0	1.5
25 Fabricated metal products	30	15.5	0.4	470	-3.0	0.4
26 General machinery	35	24.1	0.4	940	3.6	0.8
27 Electrical machinery, equipment and supplies	19	-49.9	0.2	497	-14.1	0.4
28 Information and communication electronics equipment	1	-38.6	0.0	444	-11.4	0.4
29 Electronic parts and devices	15	10.3	0.2	2,710	0.5	2.3
30 Transportation equipment	30	-5.8	0.4	9,339	5.7	8.0
31 Precision instruments and machinery	8	24.8	0.1	33	-2.1	0.0
32 Miscellaneous manufacturing industries	1	1.2	0.0	201	0.8	0.2

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.



### (3) Volume of fresh water by usage

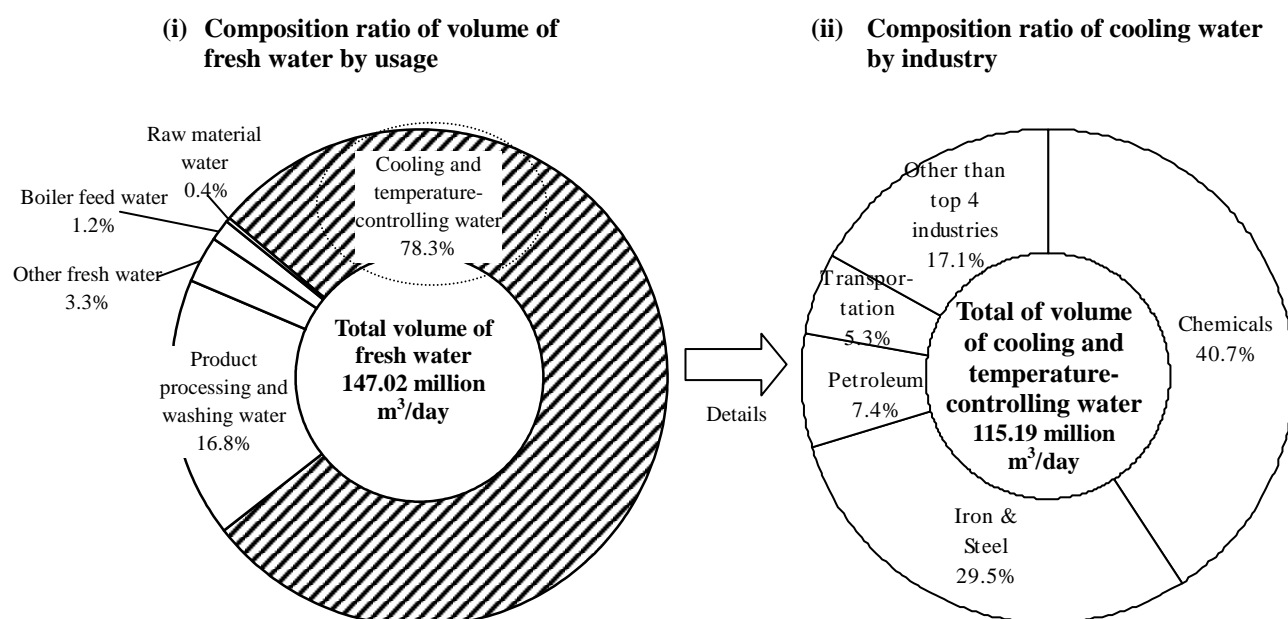
Observing the volume of fresh water by usage, cooling and temperature-controlling water (115.19 million m<sup>3</sup>, composition ratio 78.4%) takes up about 80% of the total, followed by product processing and washing water (24.73 million m<sup>3</sup>, 16.8% id.) and other fresh water (4.81 million m<sup>3</sup>, 3.3% id.). The ratio of boiler feed water (1.77 million m<sup>3</sup>, 1.2% id.) and raw material water (530 thousand m<sup>3</sup>, 0.4% id.) is very small (Table 8, Figure 11).

In the year-on-year comparison ratio, the volume decreased in all usages including cooling and temperature-controlling water (down 0.5% compared to the previous year), product processing and washing water (down 0.4% id.), other fresh water (down 0.6% id.), boiler feed water (down 1.4% id.) and raw material water (down 3.7% id.).

Observing by usage,

- (i) Fresh water for cooling and temperature controlling was used the most by far in 2 industries of “chemical and allied products” (46.94 million m<sup>3</sup>, composition ratio in cooling and temperature-controlling water 40.7%) and “iron and steel” (34.03 million m<sup>3</sup>, 29.5% id.), accounting for about 70%. “Petroleum and coal products” (8.48 million m<sup>3</sup>, 7.4% id.) and “transportation equipment” (6.07 million m<sup>3</sup>, 5.3% id.) follow the top 2 industries.
- (ii) As for the fresh water for product processing and washing, almost the half of the volume is covered by “pulp, paper and paper products” (11.86 million m<sup>3</sup>, composition ratio in product processing and washing water 47.9%), followed by “transportation equipment” (3.35 million m<sup>3</sup>, 13.6% id.), “iron and steel” (3.04 million m<sup>3</sup>, 12.3% id.), “chemical and allied products” (1.82 million m<sup>3</sup>, 7.3% id.) and “food” (1.34 million m<sup>3</sup>, 5.4% id.).
- (iii) The order of industries using much boiler feed water is “chemical and allied products” (560 thousand m<sup>3</sup>, composition ratio in boiler feed water 31.9%), “pulp, paper and paper products” (290 thousand m<sup>3</sup>, 16.4% id.), “petroleum and coal products” (220 thousand m<sup>3</sup>, 12.3% id.) and “food” (180 thousand m<sup>3</sup>, 10.2% id.).
- (iv) The raw material water was the most used in the top 4 industries including “food” (200 thousand m<sup>3</sup>, composition ratio in raw material water 38.6%), “beverages, tobacco and feed” (140 thousand m<sup>3</sup>, 26.0% id.), “chemical and allied products” (120 thousand m<sup>3</sup>, 23.5% id.) and “ceramic, stone and clay products” (50 thousand m<sup>3</sup>, 9.9% id.), accounting for the use of almost all raw material water.

**Figure 11 Composition ratio of volume of fresh water by usage and composition ratio of cooling water by industry**  
(Establishments with 30 or more employees)



**Table 8 Volume of fresh water by industry and usage**  
(Establishments with 30 or more employees)

(Unit: 1,000 m³/day)

Industry	Boiler feed water			Raw material water			Product processing and washing water		
	2002			2002			2002		
		Y/Y (%)	Composition ratio (%)		Y/Y (%)	Composition ratio (%)		Y/Y (%)	Composition ratio (%)
Total	1,765	-1.4	100.0	527	-3.7	100.0	24,731	-0.4	100.0
09 Food	180	0.8	10.2	203	-0.7	38.6	1,344	4.7	5.4
10 Beverages, tobacco and feed	51	-2.3	2.9	137	3.0	26.0	349	-3.1	1.4
11 Textile mill products	58	-10.5	3.3	0	-91.6	0.0	635	-14.3	2.6
12 Apparel and other finished products	8	-12.5	0.5	-	-	-	20	-11.7	0.1
13 Lumber and wood products	16	1.0	0.9	0	0.0	0.0	12	4.8	0.0
14 Furniture and fixtures	3	-33.6	0.2	-	-	-	10	-9.0	0.0
15 Pulp, paper and paper products	290	-3.5	16.4	8	1382.2	1.5	11,855	-1.3	47.9
16 Printing and allied industries	6	2.3	0.3	-	-	-	23	-7.2	0.1
17 Chemical and allied products	564	-2.0	31.9	124	2.0	23.5	1,815	-6.3	7.3
18 Petroleum and coal products	217	-0.4	12.3	1	138.7	0.2	41	-4.7	0.2
19 Plastic products	35	-0.2	2.0	1	72.0	0.1	108	4.7	0.4
20 Rubber products	23	4.6	1.3	0	-9.7	0.0	18	-9.3	0.1
21 Leather tanning, leather products and fur skins	1	-2.5	0.0	-	-	-	7	-14.1	0.0
22 Ceramic, stone and clay products	60	7.9	3.4	52	-39.1	9.9	476	-1.2	1.9
23 Iron and steel	101	-1.3	5.7	0	500.0	0.0	3,039	3.0	12.3
24 Non-ferrous metals and products	22	1.8	1.3	0	190.0	0.0	196	3.8	0.8
25 Fabricated metal products	15	-0.6	0.9	0	64.6	0.0	279	3.6	1.1
26 General machinery	17	9.5	1.0	0	-7.0	0.0	156	-4.3	0.6
27 Electrical machinery, equipment and supplies	14	5.5	0.8	0	-100.0	0.0	183	6.1	0.7
28 Information and communication electronics equipment	3	-24.8	0.2	-	-	-	30	-21.5	0.1
29 Electronic parts and devices	29	-3.2	1.7	-	-	-	687	1.1	2.8
30 Transportation equipment	45	6.5	2.6	0	0.0	0.0	3,353	4.4	13.6
31 Precision instruments and machinery	3	-16.2	0.2	1	12.2	0.1	40	-0.2	0.2
32 Miscellaneous manufacturing industries	3	-8.9	0.2	0	93.4	0.0	54	0.4	0.2

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

**Table 8 (Continued)**(Unit: 1,000 m<sup>3</sup>/day)

Industry	Cooling and temperature-controlling water			Other fresh water		
	2002			2002		
		Y/Y (%)	Composition ratio (%)		Y/Y (%)	Composition ratio (%)
Total	115,191	-0.5	100.0	4,808	-0.6	100.0
09 Food	2,187	-1.4	1.9	327	-3.4	6.8
10 Beverages, tobacco and feed	426	-12.5	0.4	60	19.7	1.2
11 Textile mill products	641	-18.8	0.6	64	-15.9	1.3
12 Apparel and other finished products	29	-9.2	0.0	19	-14.2	0.4
13 Lumber and wood products	14	-8.3	0.0	10	-6.6	0.2
14 Furniture and fixtures	11	-90.0	0.0	10	-13.3	0.2
15 Pulp, paper and paper products	2,484	0.8	2.2	466	-3.0	9.7
16 Printing and allied industries	46	-6.1	0.0	25	-12.2	0.5
17 Chemical and allied products	46,940	-0.6	40.7	811	-2.0	16.9
18 Petroleum and coal products	8,478	-0.9	7.4	114	6.3	2.4
19 Plastic products	2,200	-4.3	1.9	89	-3.2	1.9
20 Rubber products	864	-0.8	0.8	31	-13.2	0.6
21 Leather tanning, leather products and fur skins	1	-5.3	0.0	1	-17.7	0.0
22 Ceramic, stone and clay products	3,024	13.4	2.6	168	0.1	3.5
23 Iron and steel	34,034	-0.4	29.5	1,227	-2.3	25.5
24 Non-ferrous metals and products	2,109	-5.8	1.8	98	-13.8	2.0
25 Fabricated metal products	578	-0.6	0.5	87	-3.0	1.8
26 General machinery	1,022	7.0	0.9	201	-9.3	4.2
27 Electrical machinery, equipment and supplies	576	-19.9	0.5	111	-11.2	2.3
28 Information and communication electronics equipment	464	-10.0	0.4	38	-38.7	0.8
29 Electronic parts and devices	2,749	-0.2	2.4	189	3.1	3.9
30 Transportation equipment	6,069	3.8	5.3	622	27.5	12.9
31 Precision instruments and machinery	64	-10.0	0.1	21	-16.1	0.4
32 Miscellaneous manufacturing industries	179	-1.2	0.2	18	-9.0	0.4

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

## 2. Situation by size of employees

Comparing the volume of water by size of employees, about 40% of the volume is covered by establishments with 1,000 or more persons (72.84 million m<sup>3</sup>, composition ratio 38.4%), followed by establishments with 500 to 999 persons (36.69 million m<sup>3</sup>, 19.3% id.) and 300 to 499 persons (34.61 million m<sup>3</sup>, 18.2%). Establishments with 300 or more persons utilize about 80% of the water (Table 9).

By year-on-year comparison ratio, the volume declined in establishments with 1,000 or more persons (down 6.1% compared to the previous year) and 500 to 999 persons (down 1.0% id.) and rose in establishments with 300 to 499 persons (up 9.3% id.) and 200 to 299 persons (up 4.5% id.).

Moreover, the larger the size of employees in establishments is, the more the volume of water per establishment is. Compared by the year-on-year ratio, the volume increased in establishments with 30 to 49 persons (up 19.0% compared to the previous year), 200 to 299 persons (up 8.0% id.) and 300 to 499 persons (up 7.9% id.).

**Table 9 Volume of water by size of employees**  
(Establishments with 30 or more employees)

Size of employees (Persons)	Number of establishments		Total volume of water				Volume of water per establishment	
	2002		2002				2002	
	(1,000m <sup>3</sup> /day)	Y/Y (%)	Composition ratio (%)	(1,000m <sup>3</sup> /day)	Y/Y (%)	Composition ratio (%)	(m <sup>3</sup> /day)	Y/Y (%)
Total	47,046	-3.7	100.0	189,774	-0.3	100.0	4,034	3.5
30 to 49	17,203	-4.3	36.6	3,227	13.9	1.7	188	19.0
50 to 99	16,281	-3.7	34.6	8,612	3.3	4.5	529	7.3
100 to 199	7,982	-3.2	17.0	17,949	1.1	9.5	2,249	4.4
200 to 299	2,366	-3.3	5.0	15,853	4.5	8.4	6,700	8.0
300 to 499	1,762	1.3	3.7	34,605	9.3	18.2	19,640	7.9
500 to 999	986	-6.7	2.1	36,687	-1.0	19.3	37,208	6.1
1000 or more	466	-7.7	1.0	72,840	-6.1	38.4	156,309	1.8

Size of employees (Persons)	Fresh water			Volume of fresh water per establishment		Seawater		
	2002			2002		2002		
	(1,000m <sup>3</sup> /day)	Y/Y (%)	Composition ratio (%)	(m <sup>3</sup> /day)	Y/Y (%)	(1,000m <sup>3</sup> /day)	Y/Y (%)	Composition ratio (%)
Total	147,021	-0.5	100.0	3,125	3.3	42,753	0.4	100.0
30 to 49	3,079	13.9	2.1	179	19.3	149	13.2	0.3
50 to 99	6,815	2.8	4.6	419	6.9	1,797	5.3	4.2
100 to 199	14,635	1.3	10.0	1,834	4.7	3,314	0.2	7.8
200 to 299	12,531	5.5	8.5	5,296	9.2	3,322	0.6	7.8
300 to 499	25,272	6.0	17.2	14,343	4.7	9,333	19.2	21.8
500 to 999	30,944	1.4	21.0	31,384	8.7	5,743	-12.1	13.4
1000 or more	53,744	-7.0	36.6	115,330	0.7	19,096	-3.3	44.7

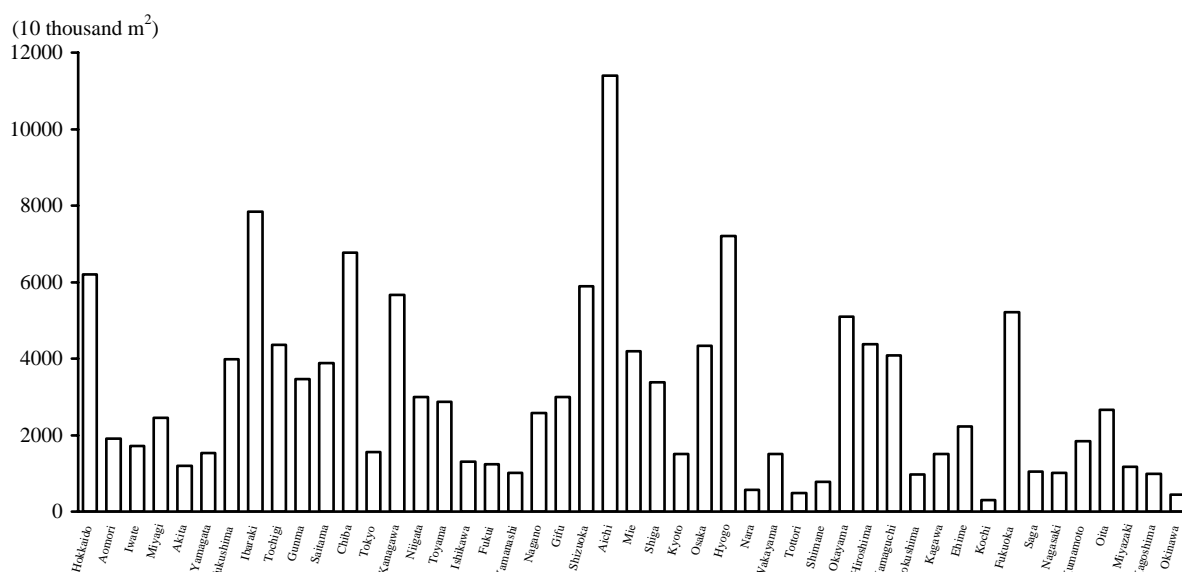
Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

### III. Situation by prefecture

#### 1. Site area

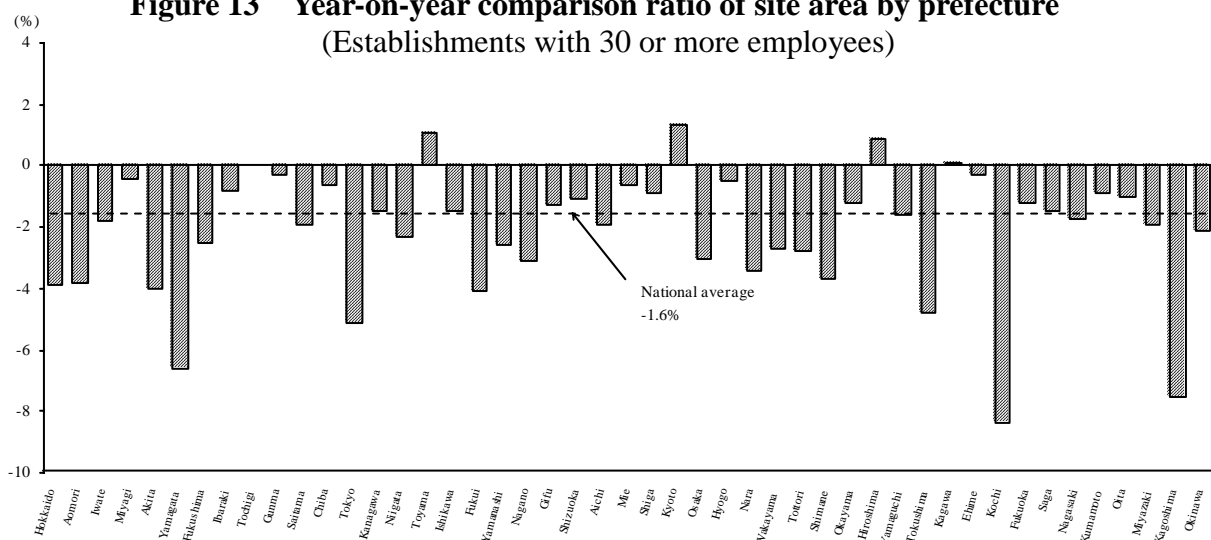
When observing the site area of establishments by prefecture, the prefectures with large site area are Aichi (114.04 million m<sup>2</sup>, composition ratio 8.0%), Ibaraki (78.42 million m<sup>2</sup>, 5.5% id.), Hyogo (72.03 million m<sup>2</sup>, 5.1% id.), Chiba (67.79 million m<sup>2</sup>, 4.8% id.), Hokkaido (61.99 million m<sup>2</sup>, 4.4% id.), Shizuoka (58.95 million m<sup>2</sup>, 4.2%) and Kanagawa (56.71 million m<sup>2</sup>, 4.0% id.) (Table 10, Figure 12).

**Figure 12 Site area by prefecture**  
(Establishments with 30 or more employees)



By ratio compared to the previous year, a decline is seen in 42 prefectures including Kochi (down 8.4% compared to the previous year), Kagoshima (down 7.5% id.), Yamagata (down 6.6% id.), Tokyo (down 5.1% id.) and Tokushima (down 4.8% id.) and an increase is seen in 4 prefectures including Kyoto (up 1.3% id.), Toyama (up 1.1% id.) and Hiroshima (up 0.9% id.) (Table 10, Figure 13).

**Figure 13 Year-on-year comparison ratio of site area by prefecture**  
(Establishments with 30 or more employees)



**Table 10 Site area, floor space and total floor space by prefecture**  
(Establishments with 30 or more employees)

(Unit: 1,000 m<sup>2</sup>)

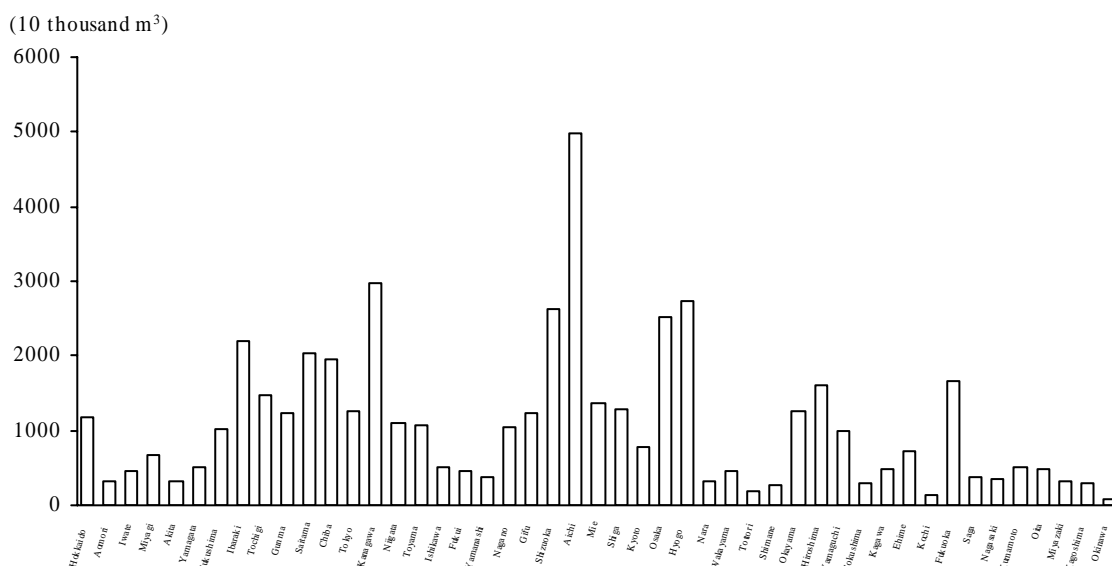
Prefecture	Site area			Floor space			Total floor space		
	2002			2002			2002		
		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)
Total	1,418,233	-1.6	100.0	377,166	-1.5	100.0	505,230	-1.1	100.0
1 Hokkaido	61,991	-3.9	4.4	9,236	-1.8	2.4	11,797	-0.6	2.3
2 Aomori	19,138	-3.8	1.3	2,314	-1.5	0.6	3,289	7.3	0.7
3 Iwate	17,154	-1.8	1.2	3,558	-1.5	0.9	4,446	-1.4	0.9
4 Miyagi	24,557	-0.4	1.7	5,413	-0.4	1.4	6,830	-0.4	1.4
5 Akita	11,995	-4.0	0.8	2,672	-5.7	0.7	3,188	-5.4	0.6
6 Yamagata	15,316	-6.6	1.1	3,961	-6.6	1.1	5,174	-5.7	1.0
7 Fukushima	39,840	-2.5	2.8	8,024	-2.8	2.1	10,061	-2.2	2.0
8 Ibaraki	78,416	-0.8	5.5	17,569	-0.8	4.7	21,874	-1.0	4.3
9 Tochigi	43,658	0.0	3.1	12,143	1.7	3.2	14,704	1.7	2.9
10 Gunma	34,635	-0.3	2.4	9,876	-2.1	2.6	12,439	-2.0	2.5
11 Saitama	38,880	-1.9	2.7	14,096	-0.7	3.7	20,287	-0.5	4.0
12 Chiba	67,793	-0.6	4.8	15,159	-1.2	4.0	19,528	-0.7	3.9
13 Tokyo	15,679	-5.1	1.1	6,543	-10.3	1.7	12,525	-5.6	2.5
14 Kanagawa	56,714	-1.5	4.0	19,957	-1.9	5.3	29,759	-1.8	5.9
15 Niigata	29,982	-2.3	2.1	7,920	-1.7	2.1	11,000	-1.6	2.2
16 Toyama	28,693	1.1	2.0	8,254	1.0	2.2	10,819	0.7	2.1
17 Ishikawa	13,162	-1.5	0.9	3,869	-1.4	1.0	5,073	-1.3	1.0
18 Fukui	12,464	-4.1	0.9	3,380	-5.6	0.9	4,647	-4.4	0.9
19 Yamanashi	10,224	-2.6	0.7	2,761	-1.9	0.7	3,856	-1.1	0.8
20 Nagano	25,850	-3.1	1.8	7,421	-2.7	2.0	10,386	-2.5	2.1
21 Gifu	29,950	-1.3	2.1	9,461	-0.6	2.5	12,221	-0.2	2.4
22 Shizuoka	58,952	-1.1	4.2	19,325	-0.5	5.1	26,181	-0.7	5.2
23 Aichi	114,044	-1.9	8.0	37,213	-0.4	9.9	49,768	0.3	9.9
24 Mie	41,931	-0.6	3.0	10,397	-1.1	2.8	13,617	0.8	2.7
25 Shiga	33,835	-0.9	2.4	9,866	-0.1	2.6	12,797	-0.2	2.5
26 Kyoto	15,004	1.3	1.1	5,281	-0.8	1.4	7,894	-0.5	1.6
27 Osaka	43,388	-3.0	3.1	16,473	-3.4	4.4	25,197	-3.6	5.0
28 Hyogo	72,031	-0.5	5.1	20,298	0.2	5.4	27,256	-0.2	5.4
29 Nara	5,690	-3.4	0.4	2,131	0.3	0.6	3,265	0.4	0.6
30 Wakayama	15,056	-2.7	1.1	3,563	-0.2	0.9	4,539	-0.2	0.9
31 Tottori	4,893	-2.8	0.3	1,496	-3.0	0.4	1,987	-3.3	0.4
32 Shimane	7,823	-3.7	0.6	2,203	-1.5	0.6	2,782	-1.4	0.6
33 Okayama	50,945	-1.2	3.6	10,282	-2.1	2.7	12,576	-1.8	2.5
34 Hiroshima	43,814	0.9	3.1	12,739	-0.5	3.4	16,141	-0.5	3.2
35 Yamaguchi	40,789	-1.6	2.9	8,138	-2.0	2.2	10,029	-1.9	2.0
36 Tokushima	9,687	-4.8	0.7	2,224	-6.3	0.6	3,080	-4.9	0.6
37 Kagawa	15,025	0.1	1.1	4,002	-1.1	1.1	4,886	-1.5	1.0
38 Ehime	22,301	-0.3	1.6	5,218	-0.1	1.4	7,165	0.4	1.4
39 Kochi	3,069	-8.4	0.2	937	-10.6	0.2	1,253	-8.8	0.2
40 Fukuoka	52,060	-1.2	3.7	13,007	-2.7	3.4	16,674	-2.8	3.3
41 Saga	10,494	-1.5	0.7	3,112	-1.3	0.8	3,834	-1.4	0.8
42 Nagasaki	10,222	-1.7	0.7	2,623	-3.0	0.7	3,448	-1.5	0.7
43 Kumamoto	18,342	-0.9	1.3	4,080	-1.4	1.1	5,186	-1.0	1.0
44 Oita	26,673	-1.0	1.9	3,791	-0.4	1.0	4,931	-0.7	1.0
45 Miyazaki	11,678	-1.9	0.8	2,540	-1.4	0.7	3,322	-0.3	0.7
46 Kagoshima	9,886	-7.5	0.7	2,083	-5.0	0.6	2,826	-2.1	0.6
47 Okinawa	4,509	-2.1	0.3	558	0.8	0.1	691	-0.6	0.1

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.

## 2. Total floor space

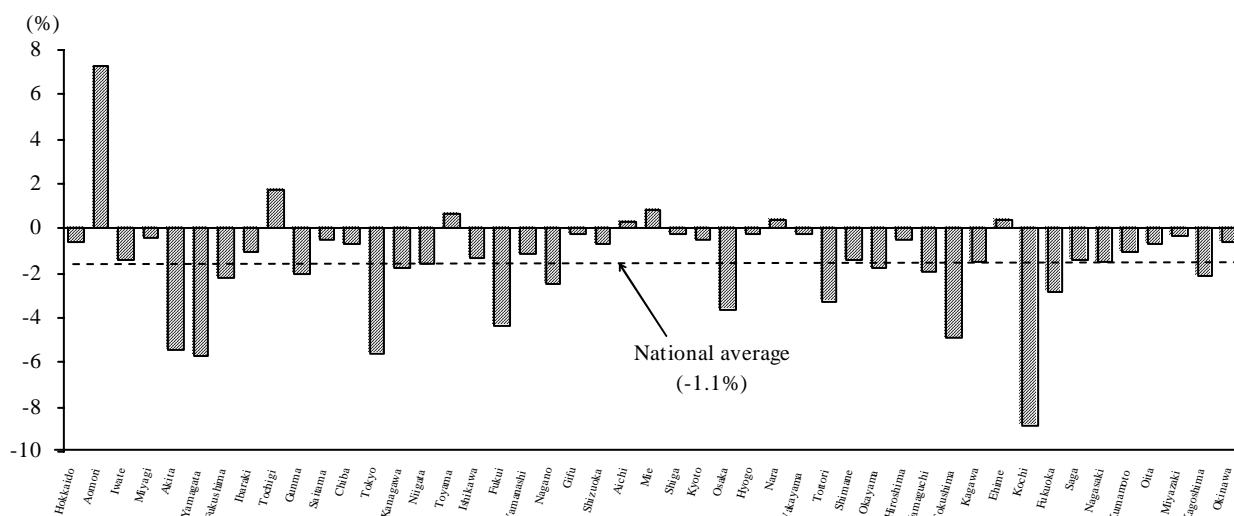
In the total floor space of establishments by prefecture, Aichi (49.77 million m<sup>2</sup>, composition ratio 9.9%) has the largest space, followed by Kanagawa (29.76 million m<sup>2</sup>, 5.9% id.), Hyogo (27.26 million m<sup>2</sup>, 5.4% id.), Shizuoka (26.18 million m<sup>2</sup>, 5.2% id.), Osaka (25.2 million m<sup>2</sup>, 5.0% id.), Ibaraki (21.87 million m<sup>2</sup>, 4.3%) and Saitama (20.29 million m<sup>2</sup>, 4.0% id.) (Table 10, Figure 14).

**Figure 14 Total floor space by prefecture**  
(Establishments with 30 or more employees)



By year-on-year comparison ratio, there is a decline in 40 prefectures including Kochi (down 8.8% compared to the previous year), Yamagata (down 5.7% id.), Tokyo (down 5.6% id.), Akita (down 5.4% id.) and Tokushima (down 4.9% id.) and there is an increase in 7 prefectures including Aomori (up 7.3% id.), Tochigi (up 1.7% id.), Mie (up 0.8% id.) and Toyama (up 0.7% id.) (Table 10, Figure 15).

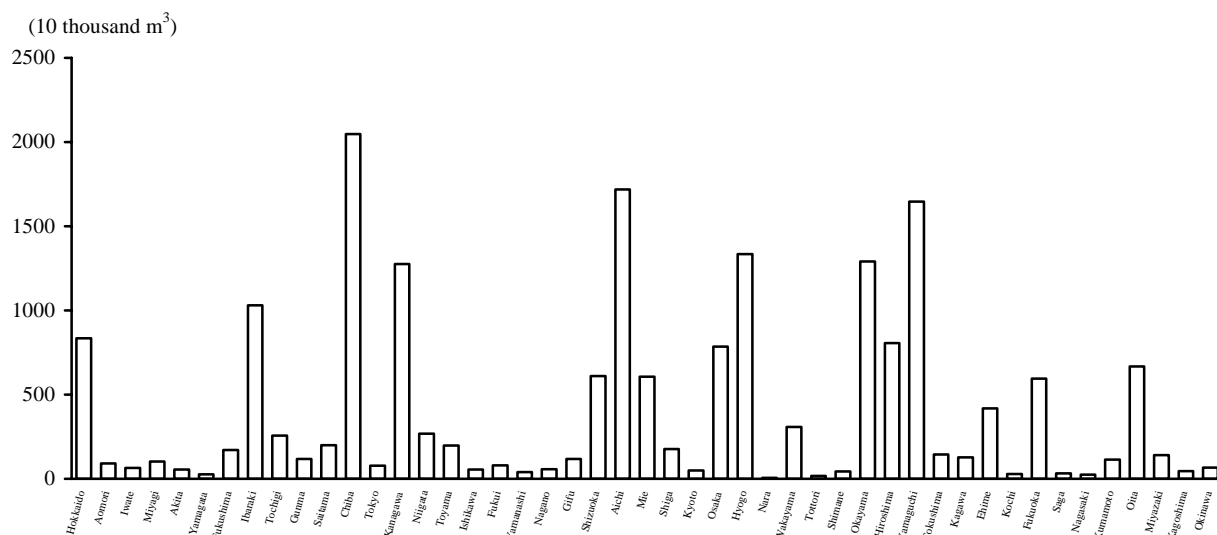
**Figure 15 Year-on-year comparison ratio of total floor space by prefecture**  
(Establishments with 30 or more employees)



### 3. Situation of industrial water

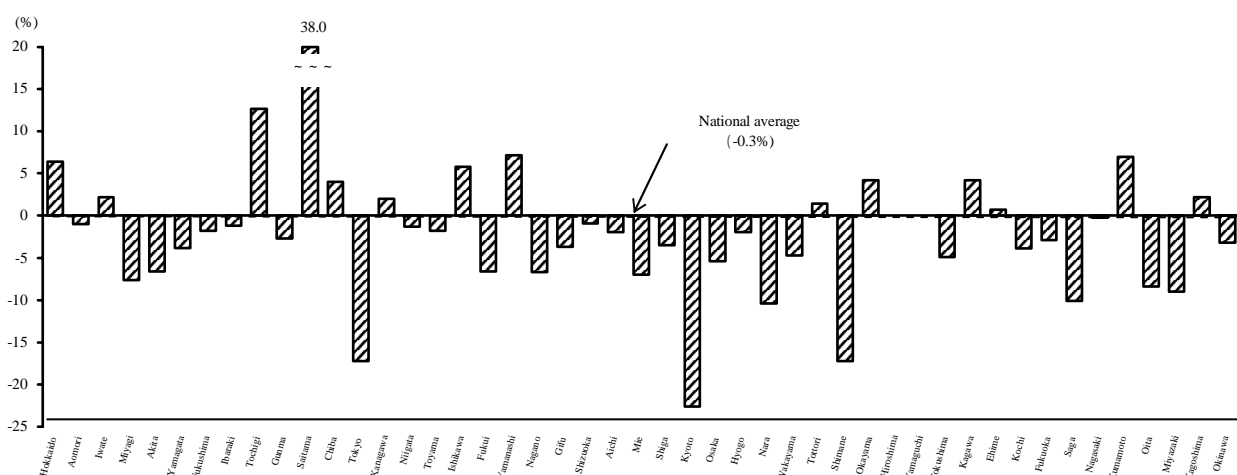
By prefecture, prefectures using much volume of industrial water are Chiba (20.48 million m<sup>3</sup>, composition ratio 10.8%), Aichi (17.20 million m<sup>3</sup>, 9.1% id.), Yamaguchi (16.47 million m<sup>3</sup>, 8.7% id.), Hyogo (13.35 million m<sup>3</sup>, 7.0% id.), Okayama (12.9 million m<sup>3</sup>, 6.8% id.), Kanagawa (12.76 million m<sup>3</sup>, 6.7% id.) and Ibaraki (10.3 million m<sup>3</sup>, 5.4% id.) (Table 11, Figure 16).

**Figure 16 Volume of water by prefecture**  
(Establishments with 30 or more employees)



By year-on-year comparison ratio, the volume decreased in 31 prefectures including Kyoto (down 22.6% compared to the previous year), Tokyo and Shimane (both down 17.2% id.), Nara (down 10.4% id.), Saga (down 10.1% id.) and Miyazaki (down 9.0% id.). It increased in 14 prefectures including Saitama (up 38.0% id.), Tochigi (up 12.7% id.), Yamanashi (up 7.2% id.), Kumamoto (up 7.0% id.), Hokkaido (up 6.4% id.) and Ishikawa (up 5.8% id.) (Table 11, Figure 17).

**Figure 17 Year-on-year comparison ratio of volume of water by prefecture**  
(Establishments with 30 or more employees)





**Table 11 Volume of water by prefecture**  
(Establishments with 30 or more employees)

(Unit: 1,000 m<sup>3</sup>/day)

Prefecture	Total of volume of water								
	2002			2002			2002		
		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)		Y/Y (%)	Composi- tion ratio (%)
Total	189,774	-0.3	100.0	147,021	-0.5	100.0	42,753	0.4	100.0
1 Hokkaido	8,344	6.4	4.4	6,626	0.6	4.5	1,717	36.2	4.0
2 Aomori	921	-1.0	0.5	896	-1.0	0.6	24	0.1	0.1
3 Iwate	640	2.2	0.3	419	3.2	0.3	222	0.2	0.5
4 Miyagi	1,018	-7.6	0.5	1,014	-7.7	0.7	3	-1.8	0.0
5 Akita	559	-6.6	0.3	365	-5.4	0.2	194	-8.6	0.5
6 Yamagata	275	-3.8	0.1	275	-3.8	0.2	-	-	-
7 Fukushima	1,716	-1.8	0.9	1,158	-2.1	0.8	558	-1.1	1.3
8 Ibaraki	10,301	-1.2	5.4	7,913	-2.0	5.4	2,388	1.5	5.6
9 Tochigi	2,573	12.7	1.4	2,573	12.7	1.8	-	-	-
10 Gunma	1,177	-2.7	0.6	1,177	-2.7	0.8	-	-	-
11 Saitama	1,997	38.0	1.1	1,997	38.0	1.4	-	-	-
12 Chiba	20,481	4.0	10.8	12,471	0.7	8.5	8,010	9.7	18.7
13 Tokyo	773	-17.2	0.4	773	-8.0	0.5	-	-	-
14 Kanagawa	12,761	2.0	6.7	9,146	0.8	6.2	3,614	5.4	8.5
15 Niigata	2,672	-1.3	1.4	2,672	-1.3	1.8	-	-	-
16 Toyama	1,985	-1.8	1.0	1,985	-1.8	1.4	-	-	-
17 Ishikawa	544	5.8	0.3	544	5.8	0.4	-	-	-
18 Fukui	808	-6.6	0.4	808	-6.6	0.5	-	-	-
19 Yamanashi	404	7.2	0.2	404	7.2	0.3	-	-	-
20 Nagano	578	-6.7	0.3	578	-6.7	0.4	-	-	-
21 Gifu	1,178	-3.7	0.6	1,178	-3.7	0.8	-	-	-
22 Shizuoka	6,108	-0.9	3.2	6,021	-1.0	4.1	87	9.8	0.2
23 Aichi	17,195	-1.9	9.1	13,852	-2.5	9.4	3,344	0.7	7.8
24 Mie	6,073	-7.0	3.2	5,289	-4.9	3.6	785	-19.1	1.8
25 Shiga	1,774	-3.5	0.9	1,774	-3.5	1.2	-	-	-
26 Kyoto	497	-22.6	0.3	497	-22.6	0.3	-	-	-
27 Osaka	7,850	-5.4	4.1	7,350	-5.7	5.0	500	0.3	1.2
28 Hyogo	13,348	-1.9	7.0	8,837	-1.4	6.0	4,510	-2.8	10.5
29 Nara	66	-10.4	0.0	66	-10.4	0.0	-	-	-
30 Wakayama	3,079	-4.7	1.6	2,115	-7.5	1.4	964	2.2	2.3
31 Tottori	180	1.4	0.1	180	1.4	0.1	0	0.0	0.0
32 Shimane	436	-17.2	0.2	433	-17.2	0.3	2	0.0	0.0
33 Okayama	12,899	4.2	6.8	10,849	7.5	7.4	2,051	-10.2	4.8
34 Hiroshima	8,066	0.0	4.3	6,835	0.1	4.6	1,230	-0.2	2.9
35 Yamaguchi	16,465	0.0	8.7	9,280	1.8	6.3	7,185	-2.2	16.8
36 Tokushima	1,448	-4.9	0.8	1,347	-5.3	0.9	100	0.0	0.2
37 Kagawa	1,268	4.2	0.7	667	1.8	0.5	601	6.9	1.4
38 Ehime	4,185	0.7	2.2	3,314	0.5	2.3	871	1.7	2.0
39 Kochi	277	-3.9	0.1	191	-5.5	0.1	86	-0.1	0.2
40 Fukuoka	5,944	-2.9	3.1	4,743	-1.4	3.2	1,201	-8.3	2.8
41 Saga	332	-10.1	0.2	331	-10.1	0.2	1	-11.9	0.0
42 Nagasaki	238	-0.2	0.1	75	-1.4	0.1	163	0.4	0.4
43 Kumamoto	1,148	7.0	0.6	1,148	7.0	0.8	1	7.1	0.0
44 Oita	6,672	-8.4	3.5	4,513	-5.3	3.1	2,159	-14.1	5.0
45 Miyazaki	1,409	-9.0	0.7	1,376	-9.2	0.9	33	0.2	0.1
46 Kagoshima	456	2.2	0.2	423	0.0	0.3	34	42.5	0.1
47 Okinawa	657	-3.2	0.3	544	0.3	0.4	113	-17.2	0.3

Note: Because of the revision of the Japan Standard Industrial Classification in the 2002 survey, the year-on-year comparison is calculated by incorporating the classification of 2001 into that of 2002.