

5.01 Number of Specified Sites in accordance with the Water Pollution Control Act

	Total number of Specified Facilities	Breakdown by effluent discharge regulations			
		Effluent discharge per day is more than or equal to 50 m ³	Specified Workplaces that Use Harmful Substances	Effluent discharge per day is less than 50 m ³	Specified Workplaces that Use Harmful Substances
FY1985	279,762	29,890	3,900	249,872	9,507
	(5,035)	(4,797)	(849)	(238)	(25)
1986	280,443	29,802	3,854	250,641	9,035
	(4,740)	(4,518)	(765)	(222)	(20)
1987	281,057	29,968	3,983	251,089	9,253
	(4,728)	(4,514)	(800)	(214)	(19)
1988	285,860	31,420	4,067	254,440	9,030
	(5,168)	(4,901)	(817)	(267)	(25)
1989	287,679	31,692	4,295	255,987	12,953
	(5,018)	(4,757)	(759)	(261)	(16)
1990	290,328	32,190	4,328	258,138	13,295
	(5,008)	(4,742)	(803)	(266)	(16)
1991	304,663	36,548	4,387	268,115	14,022
	(5,004)	(4,733)	(771)	(271)	(20)
1992	303,810	36,901	4,430	266,909	13,613
	(5,009)	(4,751)	(801)	(258)	(22)
1993	305,318	36,939	5,025	268,379	13,233
	(4,741)	(4,507)	(848)	(234)	(22)
1994	305,987	37,948	5,295	268,039	13,546
	(5,106)	(4,849)	(918)	(257)	(29)
1995	303,807	38,417	5,258	265,390	13,024
	(5,124)	(4,861)	(917)	(263)	(28)
1996	303,100	38,534	5,128	264,566	13,146
	(4,989)	(4,745)	(893)	(244)	(26)
1997	298,967	38,127	4,934	260,840	12,707
	(4,676)	(4,455)	(836)	(221)	(20)
1998	298,044	38,386	5,178	259,658	12,432
	(4,599)	(4,382)	(861)	(217)	(16)
1999	298,529	38,415	4,712	260,114	12,005
	(4,528)	(4,299)	(718)	(229)	(18)
2000	298,245	38,502	4,815	259,743	12,127
	(4,462)	(4,221)	(734)	(241)	(22)
2001	297,973	38,751	5,091	259,222	11,892
	(4,617)	(4,365)	(811)	(252)	(29)
2002	296,157	38,292	4,582	257,865	10,975
	(4,551)	(4,304)	(774)	(247)	(27)
2003	293,481	37,226	4,434	256,255	10,926
	(4,289)	(4,027)	(664)	(262)	(27)
2004	292,379	37,017	4,475	255,362	10,526
	(4,188)	(3,926)	(677)	(262)	(32)
2005	290,759	36,543	4,424	254,216	10,567
	(4,158)	(3,874)	(603)	(284)	(33)
2006	289,091	36,139	4,471	252,952	11,234
	(4,118)	(3,842)	(651)	(276)	(43)
2007	280,517	35,506	4,330	245,011	10,757
	(3,906)	(3,662)	(617)	(244)	(37)
2008	276,952	34,807	4,336	242,145	10,611
	(3,854)	(3,595)	(639)	(259)	(36)
2009	274,039	34,271	4,179	239,768	10,348
	(3,813)	(3,543)	(628)	(270)	(31)
2010	271,242	33,964	4,156	237,278	10,119
	(3,743)	(3,492)	(622)	(251)	(24)
2011	266,860	33,529	4,025	233,331	10,046
	(3,685)	(3,440)	(623)	(245)	(24)
2012	271,168	33,067	3,931	233,146	10,917
	(3,559)	(3,321)	(545)	(238)	(28)
2013	269,847	32,589	3,877	232,300	11,388
	(3,485)	(3,241)	(541)	(244)	(31)
2014	267,328	32,381	3,813	230,225	11,207
	(3,444)	(3,202)	(538)	(242)	(30)
2015	264,924	31,935	3,785	228,871	11,001
	(3,361)	(3,150)	(513)	(211)	(26)

Note:

Parenthesized is the number of specified sites with the specified facilities, in accordance with Law concerning Special Measures for Conservation of the Environment of the Seto Inland Sea.

Source: "Enforcement of Water Pollution Control Law etc.," Ministry of the Environment

5.02 Number of specified Facilities by prefecture in accordance with Water Pollution Control Act

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Hokkaido	7,601	7,356	7,127	6,936	6,818	6,569	6,372	6,332	6,242	6,186	6,252	6,129	6,361	6,130	6,112	6,108
Aomori	5,290	5,307	5,353	5,299	5,445	5,401	5,494	5,374	5,035	4,984	4,974	4,861	4,856	4,788	4,795	4,726
Iwate	5,685	5,971	5,489	5,521	5,414	5,339	5,346	5,287	5,282	5,266	5,228	5,173	5,288	5,300	5,268	5,176
Miyagi	6,918	6,703	6,714	6,699	6,746	6,725	6,717	6,761	5,787	5,758	5,771	5,703	5,792	5,631	5,539	5,583
Akita	4,335	4,018	4,380	4,405	4,401	4,241	4,310	4,181	3,974	3,939	3,847	3,737	3,781	3,735	3,638	3,585
Yamagata	4,284	4,265	4,235	4,206	4,245	4,235	4,289	4,331	4,364	4,282	3,660	3,672	3,712	3,753	3,760	3,760
Fukushima	8,011	8,038	7,991	7,940	7,975	7,973	7,899	7,892	7,827	7,711	7,643	7,649	7,652	8,037	7,975	7,870
Ibaraki	9,650	9,553	9,750	9,767	9,783	10,039	9,580	8,634	9,346	9,327	9,279	9,000	9,353	8,905	8,563	8,523
Tochigi	8,177	8,415	8,445	8,490	8,183	8,174	8,220	8,240	8,239	8,234	8,233	8,233	8,251	8,198	8,173	8,204
Gunma	5,119	5,211	5,230	5,237	5,345	5,387	5,484	5,376	5,270	5,285	5,300	5,308	5,275	5,242	5,143	5,016
Saitama	10,146	10,383	10,276	10,081	10,161	9,314	9,608	9,670	9,670	9,625	9,461	9,577	9,590	9,482	9,321	9,249
Chiba	12,062	11,850	11,836	11,491	11,302	11,199	11,022	10,787	10,581	10,401	10,260	10,194	10,278	10,597	10,487	10,189
Tokyo	1,897	1,874	1,777	1,855	1,878	2,216	2,289	2,325	2,304	2,295	2,265	2,218	3,352	3,333	3,390	3,269
Kanagawa	9,492	9,293	8,960	8,985	8,904	8,775	8,564	8,229	8,142	8,017	7,915	7,800	7,832	7,792	7,767	7,682
Niigata	10,890	11,040	10,857	10,841	10,784	10,787	10,694	10,635	10,593	10,498	10,145	9,477	8,917	8,664	8,621	8,598
Toyama	3,367	3,382	3,386	3,382	3,389	3,412	3,430	3,458	3,472	3,486	3,452	3,383	3,421	3,448	3,454	3,452
Ishikawa	4,378	4,335	4,180	4,079	4,064	3,979	3,979	3,982	3,837	3,911	3,871	3,824	3,835	3,856	3,840	3,825
Fukui	2,900	2,686	2,788	2,813	2,891	2,906	2,772	2,648	2,542	2,474	2,457	2,430	2,431	2,398	2,375	2,380
Yamanashi	5,159	5,361	5,385	5,361	5,301	5,312	5,302	5,195	5,148	5,153	5,124	5,067	5,049	5,013	4,854	4,872
Nagano	12,743	13,141	13,073	13,046	13,058	13,077	12,986	12,941	12,911	12,871	12,670	12,499	12,587	12,447	12,434	12,363
Gifu	9,055	8,885	8,898	8,843	8,873	8,874	8,827	8,820	8,790	8,714	8,614	8,545	8,538	8,573	8,473	8,331
Shizuoka	12,466	12,609	12,581	12,573	12,552	12,476	12,378	12,535	12,499	11,853	11,941	11,848	12,290	11,541	11,501	11,350
Aichi	15,318	14,540	14,372	14,138	14,001	13,849	13,695	13,393	13,139	12,894	12,658	12,468	12,203	12,172	11,956	11,818
Mie	8,699	8,641	8,544	8,592	8,663	8,618	8,484	8,516	8,549	8,568	8,547	8,513	8,525	8,565	8,333	8,301
Shiga	3,787	3,637	3,580	3,523	3,418	3,422	3,284	3,238	2,957	2,902	3,165	2,866	2,897	3,467	3,414	3,453
Kyoto	4,664	4,949	4,920	4,798	4,760	4,874	5,063	5,048	5,036	5,038	4,791	4,693	4,579	4,524	4,473	4,501
Osaka	5,920	5,717	5,516	5,362	5,230	5,214	4,936	5,001	4,965	4,468	4,029	3,403	4,569	4,572	4,470	4,378
Hyogo	10,838	10,759	10,700	10,667	10,538	10,027	9,986	9,825	9,783	9,680	9,071	8,984	9,283	9,344	9,132	9,106
Nara	3,215	3,247	3,058	3,070	3,270	3,332	3,340	3,358	3,356	3,355	3,101	3,107	3,124	3,254	3,095	3,095
Wakayama	3,585	3,600	3,631	3,672	3,721	3,953	3,951	3,871	3,843	3,853	3,678	3,643	3,678	3,705	3,991	3,752
Tottori	2,389	2,461	2,465	2,430	2,366	2,269	2,351	2,345	2,370	2,326	2,316	2,309	2,333	2,396	2,396	2,333
Shimane	3,941	3,902	3,875	3,355	3,330	3,325	3,341	3,348	3,256	3,233	3,179	3,101	3,123	3,126	3,124	3,126
Okayama	5,916	5,783	5,894	5,898	5,896	5,723	5,713	5,680	5,604	5,571	5,031	5,020	5,020	4,801	4,645	4,548
Hiroshima	7,304	7,263	7,315	7,289	7,270	7,520	7,159	6,636	6,491	6,308	5,788	5,764	5,799	5,814	5,772	5,953
Yamaguchi	4,394	4,800	4,781	4,780	4,251	4,249	4,241	4,243	4,242	4,236	3,900	3,911	3,950	3,946	3,849	3,841
Tokushima	4,083	4,113	4,224	4,256	4,303	4,323	4,316	4,324	4,334	4,356	4,148	4,159	4,175	4,187	4,177	4,192
Kagawa	4,891	4,982	4,924	4,924	4,931	4,929	4,923	4,841	4,700	4,580	4,290	4,296	4,280	4,108	4,090	4,041
Ehime	5,969	5,899	5,743	5,290	5,236	5,077	5,046	4,972	4,859	4,726	4,329	4,185	4,197	4,132	4,082	4,058
Kochi	3,310	3,301	3,291	3,287	3,300	3,320	3,288	3,309	3,318	3,203	3,210	3,049	2,951	2,947	2,903	2,888
Fukuoka	6,821	6,776	6,789	6,583	6,545	6,462	6,544	6,184	6,096	5,899	5,510	5,048	5,200	5,372	5,365	5,323
Saga	2,889	2,885	2,891	2,872	2,896	2,908	2,907	2,952	2,980	2,991	2,906	2,733	3,497	3,539	2,739	2,704
Nagasaki	5,720	5,738	5,647	5,634	5,397	5,468	5,651	5,789	5,889	5,954	6,182	6,144	5,421	5,639	6,381	6,487
Kumamoto	8,333	8,376	8,413	8,474	8,532	8,584	8,865	3,579	3,103	3,198	3,211	3,299	3,445	3,471	3,479	3,502
Oita	5,242	5,428	5,466	5,477	5,607	5,546	5,652	5,733	5,624	5,663	5,273	5,374	5,434	5,344	5,355	5,278
Miyazaki	3,989	4,029	4,059	3,953	4,009	3,942	4,009	4,066	4,107	4,176	4,189	4,154	4,051	3,883	3,867	3,869
Kagoshima	5,866	5,917	5,724	5,763	5,825	5,817	5,287	5,246	5,236	5,284	5,311	5,314	5,479	5,416	5,477	5,479
Okinawa	1,537	1,554	1,624	1,544	1,572	1,598	1,497	1,387	1,260	1,307	1,324	1,311	1,355	1,377	1,383	1,426
Total	298,245	297,973	296,157	293,481	292,379	290,759	289,091	280,517	276,952	274,039	267,499	263,175	267,009	265,964	263,431	261,563

Source: "Enforcement of Water Pollution Control Law etc.," Ministry of the Environment

5.03 Results of the comprehensive survey of release of water pollution substances

(FY2015)

	Number of subjected business establishments	Effluent concentration (mg/L)		
		Average	Maximum	Minimum
BOD	19,837	6.20	320.00	0.00
COD	16,057	10.60	300.00	0.00
Cadmium and its compounds	252	0.00	0.10	0.00
Organic phosphorus compound	132	0.03	0.13	0.00
Hexavalent chromium compounds	504	0.03	0.90	0.00
Arsenic and its compounds	247	0.01	0.41	0.00
Total mercury	186	0.00	0.04	0.00
Alkyl mercury compounds	122	0.00	0.00	0.00
PCB	117	0.00	0.00	0.00
Trichloroethylene	194	0.01	0.41	0.00
Tetrachloroethylene	167	0.00	0.24	0.00

Source: "Comprehensive survey of release of water pollution substance in fiscal year 2015," Ministry of the Environment

5.04 Rate of compliance with environmental quality on health issues (non-achievement rate)

	FY2015									FY2014			FY2013		
	Rivers		Lakes		Sea areas		Total		a / b (%)	Total			Total		
	a: Number of exceeding points	b: Number of monitoring points	a: Number of exceeding points	b: Number of monitoring points	a: Number of exceeding points	b: Number of monitoring points	a: Number of exceeding points	b: Number of monitoring points		a: Number of exceeding points	b: Number of monitoring points	a / b (%)	a: Number of exceeding points	b: Number of monitoring points	a / b (%)
Cadmium	4	3,085	0	261	0	828	4	4,174	0.10	3	4,181	0.07	4	4,171	0.10
Total cyanide	0	2,771	0	222	0	696	0	3,689	0	0	3,700	0	0	3,686	0
Lead	4	3,216	0	261	0	846	4	4,323	0.09	2	4,341	0.05	2	4,346	0.05
Hexavalent chromium	0	2,669	0	236	0	787	0	3,892	0	0	3,902	0	0	3,920	0
Arsenic	22	3,172	1	262	0	843	23	4,277	0.54	22	4,289	0.51	25	4,290	0.58
Total mercury	0	2,956	0	245	0	839	0	4,040	0	0	4,046	0	1	4,069	0
Alkyl mercury	0	622	0	70	0	179	0	871	0	0	931	0	0	894	0
PCB	0	1,764	0	156	0	425	0	2,345	0	0	2,311	0	0	2,337	0
Dichloromethane	0	2,647	0	211	0	568	0	3,426	0	0	3,448	0	0	3,490	0
Carbon tetrachloride	0	2,613	0	209	0	541	0	3,363	0	0	3,390	0	0	3,401	0
1,2-dichloroethane	1	2,659	0	211	0	566	1	3,436	0.03	1	3,437	0	1	3,466	0
1,1-dichloroethylene	0	2,665	0	211	0	566	0	3,442	0	0	3,425	0	0	3,476	0
cis-1,2-dichloroethylene	0	2,650	0	211	0	566	0	3,427	0	0	3,427	0	0	3,476	0
1,1,1-trichloroethane	0	2,668	0	217	0	574	0	3,459	0	0	3,467	0	0	3,500	0
1,1,2-trichloroethane	0	2,649	0	211	0	566	0	3,426	0	0	3,426	0	0	3,474	0
Trichloroethylene	0	2,706	0	223	0	579	0	3,508	0	0	3,531	0	0	3,600	0
Tetrachloroethylene	0	2,707	0	223	0	579	0	3,509	0	0	3,530	0	0	3,600	0
1,3-dichloropropene	0	2,660	0	218	0	525	0	3,403	0	0	3,411	0	0	3,439	0
Thiuram	0	2,602	0	214	0	517	0	3,333	0	0	3,360	0	0	3,368	0
Simazine	0	2,654	0	211	0	512	0	3,377	0	0	3,338	0	0	3,401	0
Thiobencarb	0	2,631	0	211	0	512	0	3,354	0	0	3,323	0	0	3,392	0
Benzene	0	2,611	0	212	0	568	0	3,391	0	0	3,393	0	0	3,440	0
Selenium	0	2,644	0	205	0	574	0	3,423	0	0	3,416	0	0	3,458	0
Nitrate nitrogen and nitrite nitrogen	2	3,064	0	351	0	721	2	4,136	0.05	2	4,247	0.05	2	4,074	0.05
Fluorine	14 (23)	2,654 (2,663)	0 (233)	233 (22)	- (22)	- (23)	14 (23)	2,887 (2,918)	0.48	17 (29)	2,916 (2,952)	0.58	14 (25)	2,919 (2,959)	0.48
Boron	1 (68)	2,555 (2,622)	0 (2)	226 (228)	- (20)	- (70)	1 (70)	2,781 (2,870)	0.04	1 (79)	2,782 (2,882)	0.04	1 (100)	2,779 (2,905)	0.04
1,4-dioxane	0	2,574	0	212	0	588	0	3,374	0	0	3,373	0	0	3,387	0
Total (total number of points)	45 <48>	3,896	1 <1>	406	0 <0>	1,071	46 <49>	5,373	0.86	46 <48>	5,375	0.86	44 <50>	5,409	0.81

Notes:

- Nitrate nitrogen and nitrite nitrogen, fluorine, and boron have been included in water quality measurements across the country since 1999.
- Environmental standards of fluorine and boron are not applicable to sea areas.
- Measurement points of sea areas of these two items as described in () are for reference purpose only and are excluded from environmental standards as well as the total field. Also, in rivers and lakes, a number of points, not including exceeding points of environmental standards which are affected in the sea, are described. These points are described below () for reference.
- Upper number in the "Total" field: the number of points without overlaps.
- Lower number in the total field: gross number of points counted as one when it detects multiple exceeding values beyond environmental standards. Non-achievement rates are calculated based on the number "46" which is equivalent to the number of points that detect multiple exceeding values beyond the environmental standards.

Source: "Results of water quality measurement in public waters FY2015," Ministry of the Environment

5.05 Rate of compliance for environmental standards (BOD or COD)

	Rivers	Lakes	Sea areas	Tokyo Bay	Ise Bay	Osaka Bay	Seto Inland Sea*	Seto Inland Sea	Ariake Sea	Yatsushiro Sea	Total	Number of Water Areas
FY1974	51.3	41.9	70.7	44	47	67	-	67	88	75	54.9	1,927
1975	57.1	38.6	72.4	44	53	67	-	69	81	100	59.6	2,394
1976	57.6	40.7	76.4	67	47	67	-	72	88	86	60.6	2,586
1977	58.5	35.2	76.9	61	47	67	-	73	81	93	61.2	2,769
1978	59.5	37.6	75.3	61	53	67	-	75	94	93	61.7	2,814
1979	65.0	41.8	78.2	61	53	67	-	76	88	93	66.7	2,866
1980	67.2	41.6	79.8	61	53	67	-	72	88	79	68.7	2,913
1981	63.3	42.7	81.6	61	59	75	81	81	94	86	66.0	2,935
1982	65.3	41.7	81.3	61	41	67	83	81	94	93	67.5	2,982
1983	65.9	40.8	79.8	61	53	67	83	81	94	93	67.7	3,009
1984	63.4	42.7	81.3	61	47	67	81	81	94	100	66.1	3,044
1985	67.7	41.2	80.0	61	47	67	81	81	94	93	69.0	3,052
1986	68.6	40.0	81.2	63	59	67	79	78	94	100	69.9	3,061
1987	68.3	43.1	82.6	63	47	67	81	80	94	86	70.1	3,070
1988	73.3	44.2	82.7	63	65	67	81	81	88	93	73.9	3,083
1989	73.8	46.3	82.4	63	53	67	79	78	94	93	74.3	3,092
1990	73.6	44.2	77.6	63	59	67	75	75	94	100	73.1	3,103
1991	75.4	42.3	80.2	63	59	67	79	78	94	100	75.0	3,123
1992	75.4	44.6	80.9	74	53	67	79	78	88	100	75.2	3,149
1993	77.3	46.1	79.5	63	65	67	73	72	94	100	76.5	3,147
1994	67.9	40.6	79.2	63	47	67	77	76	94	100	68.9	3,170
1995	72.3	39.5	78.6	63	56	67	75	75	93	100	72.1	3,181
1996	73.6	42.0	81.1	63	56	67	79	78	93	100	73.7	3,231
1997	80.9	41.0	74.9	63	44	67	75	75	93	86	78.1	3,244
1998	81.0	40.9	73.6	63	44	67	75	76	80	79	77.9	3,258
1999	81.5	45.1	74.5	63	50	67	75	75	93	79	78.7	3,270
2000	82.4	42.3	75.3	63	56	67	77	76	87	43	79.4	3,274
2001	81.5	45.8	79.3	68	56	67	75	74	93	86	79.5	3,291
2002	85.1	43.8	76.9	68	44	67	69	69	87	86	81.7	3,300
2003	87.4	55.2	76.2	68	50	67	70	70	93	86	83.8	3,301
2004	89.8	50.9	75.5	63	50	67	67	67	80	71	85.2	3,313
2005	87.2	53.4	76.0	63	50	67	74	74	87	64	83.4	3,319
2006	91.2	55.6	74.5	68	44	67	71	70	87	64	86.3	3,334
2007	90.0	50.3	78.7	63	56	67	78	77	80	86	85.8	3,324
2008	92.3	53.0	76.4	74	56	67	72	72	93	79	87.4	3,331
2009	92.3	50.0	79.2	68	56	67	77	77	93	86	87.6	3,335
2010	92.5	53.2	78.3	63	56	67	81	80	87	79	87.8	3,337
2011	93.0	53.7	78.4	68	56	67	79	78	80	64	88.2	3,326
2012	93.1	55.3	79.8	63	56	67	79	78	87	86	88.6	3,329
2013	92.0	55.1	77.3	63	56	67	77	77	87	79	87.3	3,335
2014	93.9	55.6	79.1	63	50	67	78	77	93	86	89.1	3,339
2015	95.8	58.7	81.1	63	69	75	77	77	93	86	91.1	3,340

Notes:

- BOD is applied for Rivers, COD for Lakes and Sea Areas.
- Achievement rate (%) = (number of water areas meeting the standards / number of water areas in a specified type) × 100
- Mikawa Bay is included in Ise Bay.
- "Seto Inland Sea", the column shadowed with a gray does not include Osaka Bay. Osaka Bay is included in "Seto Inland Sea."

Source: "Measurement Results of Water Quality in Public Waters FY2015," Ministry of the Environment

5.06 Water quality of enclosed sea area (annual average of COD)

		FY 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average of the last 10 years
Tokyo Bay	Average (mg/L)	2.7	2.5	2.6	2.5	2.8	2.7	2.7	2.6	2.8	2.6	2.7 mg/L
	Category A	2.0	1.8	2.3	1.7	2.3	2.1	2.3	2.0	2.2	2.2	
	Category B	2.7	2.5	2.4	2.5	2.9	2.7	2.7	2.5	2.8	2.5	
	Category C	3.0	2.9	2.9	2.8	3.1	3.0	3.2	2.9	3.1	2.8	
	Total points of environment standards ①	49	49	49	49	49	49	49	49	49	49	
	Environment standards point to satisfy standard level ②	30	30	38	35	25	35	29	29	29	33	
	②/① (%)	61	61	78	71	51	71	59	59	59	67	
Ise Bay (including Mikawa Bay)	Average (mg/L)	3.3	3.2	3.4	2.9	3.1	2.8	2.8	3.1	3.2	3.1	3.1 mg/L
	Category A	3.0	2.6	3.1	2.5	2.6	2.5	2.6	2.8	2.8	2.6	
	Category B	3.0	3.2	3.0	2.8	2.8	2.6	2.7	2.8	2.8	2.7	
	Category C	3.8	3.7	4.0	3.2	3.8	3.5	3.8	3.7	3.9	3.9	
	Total points of environment standards ③	32	32	32	32	32	32	32	32	32	32	
	Environment standards point to satisfy standard level ④	13	17	15	17	17	16	17	19	15	19	
	④/③ (%)	41	53	47	53	53	50	53	59	47	59	
Osaka Bay	Average (mg/L)	2.7	2.7	2.8	2.8	2.8	2.5	2.7	2.6	2.4	2.6	2.7 mg/L
	Category A	2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.1	2.3	
	Category B	2.8	2.8	2.9	2.8	3.0	2.7	2.9	2.7	2.6	2.7	
	Category C	3.0	2.9	3.0	3.2	3.1	2.5	2.8	2.8	2.7	2.7	
	Total points of environment standards ⑤	28	28	28	28	28	28	28	28	28	28	
	Environment standards point to satisfy standard level ⑥	18	16	15	15	16	18	15	17	18	19	
	⑥/⑤ (%)	64	57	54	54	57	64	54	61	64	68	
Seto Inland Sea (excluding Osaka Bay)	Average (mg/L)	2.1	2.0	2.0	1.9	1.9	1.9	1.9	2.1	2.0	2.0	2.0 mg/L
	Category A	1.9	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.7	
	Category B	2.3	2.2	2.3	2.2	2.2	2.2	2.0	2.0	2.2	2.3	
	Category C	3.0	2.8	2.7	2.8	2.7	2.7	2.7	2.5	2.6	2.7	
	Total points of environment standards ⑦	426	426	423	401	421	424	424	424	424	424	
	Environment standards point to satisfy standard level ⑧	277	322	297	310	323	323	334	325	332	308	
	⑧/⑦ (%)	65	76	70	77	77	76	79	77	78	73	
Seto Inland Sea (including Osaka Bay)	Average (mg/L)	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0 mg/L
	Category A	1.9	1.8	1.8	1.7	1.7	1.8	1.8	1.9	1.8	1.8	
	Category B	2.4	2.3	2.3	2.2	2.2	2.2	2.0	2.0	2.2	2.3	
	Category C	3.0	2.8	2.8	2.8	2.8	2.7	2.6	2.5	2.6	2.7	
	Total points of environment standards ⑨	454	454	451	429	449	452	452	452	452	452	
	Environment standards point to satisfy standard level ⑩	295	338	312	325	339	340	349	342	350	327	
	⑩/⑨ (%)	65	74	69	76	76	75	77	76	77	72	
Ariake Sea	Average (mg/L)	1.8	1.9	1.8	1.8	1.9	2.3	2.3	2.1	1.8	1.9	2.0 mg/L
	Category A	2.0	2.2	1.9	2.0	2.2	2.1	2.1	2.0	2.0	2.1	
	Category B	1.5	1.6	1.4	1.5	1.5	2.6	2.3	2.2	1.5	1.5	
	Category C	2.0	2.1	2.1	2.2	2.3	2.2	2.0	2.0	2.2	2.2	
	Total points of environment standards ⑪	34	34	34	34	34	34	34	34	34	34	
	Environment standards point to satisfy standard level ⑫	26	25	28	28	25	20	19	26	28	27	
	⑫/⑪ (%)	76	74	82	82	74	59	56	76	82	79	
Yatsushiro Sea	Average (mg/L)	1.9	1.9	1.6	1.7	1.8	1.9	1.9	1.9	1.7	1.7	1.8 mg/L
	Category A	1.8	1.7	1.5	1.6	1.7	1.8	1.6	1.7	1.7	1.6	
	Category B	2.0	2.0	1.6	1.8	1.9	2.1	1.9	1.9	1.9	1.9	
	Category C	2.8	2.6	2.1	2.6	2.5	2.4	2.3	2.4	1.9	2.1	
	Total points of environment standards ⑬	29	29	29	29	29	29	29	29	29	29	
	Environment standards point to satisfy standard level ⑭	20	26	26	27	26	21	27	23	27	27	
	⑭/⑬ (%)	69	90	90	93	90	72	93	79	93	93	

Source: "Measurement Results of Water Quality in Public Waters FY2015," Ministry of the Environment

5.07 Changes in Water quality in the specified lakes (COD)

(Unit: mg / L)

		Category	Number of points	FY 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Kamafusa Dam		A A	1	2.6	2.2	2.3	2.5	2.6	2.5	2.4	2.5	2.9	2.7
				2.1	2.0	2.1	2.3	2.5	2.4	2.2	2.4	2.7	2.8
Hachirogata Regulating Pond		A	3	12.0	9.5	10.0	8.8	9.7	10.0	12.0	9.4	9.8	11.0
				8.8	7.5	6.8	6.8	7.5	7.2	8.5	6.3	7.0	7.9
Kasumigaur a Lake	(Nishiura)	A	4	9.3	9.7	9.8	10.0	10.0	9.0	8.3	7.5	7.9	8.6
				8.2	8.5	8.4	9.3	8.2	8.1	7.5	6.6	6.6	7.8
	(Lake Kitaura)	A	2	9.4	9.8	10.0	11.0	12.0	9.1	9.2	8.5	9.6	10.0
				8.4	9.5	9.3	10.0	9.1	8.0	8.3	7.3	7.5	8.9
	(Hitachitonegawa)	A	2	8.9	9.6	9.7	9.7	10.0	9.2	8.3	7.2	7.4	9.0
				8.1	8.8	8.7	9.3	9.2	8.5	8.0	6.7	7.3	8.3
Lake Inba-numa		A	1	10.0	12.0	9.6	9.8	10.0	13.0	12.0	14.0	11.0	14.0
				8.6	11.0	8.5	8.6	8.9	11.0	11.0	12.0	11.0	11.0
Lake Teganuma		B	1	9.6	9.7	9.1	10.0	9.6	10.0	11.0	10.0	8.4	9.3
				7.9	8.4	8.2	8.6	8.9	9.3	9.6	9.5	7.6	8.1
Lake Suwa		A	3	7.4	6.2	6.8	6.0	6.7	4.9	6.7	7.5	7.5	6.4
				5.5	5.1	5.3	4.8	4.5	4.0	4.9	5.9	5.0	4.7
Lake Nojiri		A A	2	1.8	2.0	2.3	2.4	2.2	2.2	2.3	2.4	2.3	2.2
				1.6	1.6	1.9	2.1	1.9	1.9	2.0	2.0	2.1	1.9
Lake Biwa	(North lake)	A A	4	2.5	2.9	3.0	3.0	2.9	2.8	2.8	2.6	2.9	2.8
				2.4	2.6	2.7	2.7	2.6	2.5	2.6	2.4	2.4	2.5
	(South lake)	A A	4	3.7	4.3	4.3	4.7	5.0	4.5	5.3	4.4	4.3	4.6
				2.9	3.4	3.5	3.5	3.7	3.3	3.7	3.1	3.1	3.2
Lake Nakaumi		A	12	5.9	5.6	6.0	5.9	5.3	5.4	5.4	5.6	5.0	5.2
				4.5	4.5	4.4	4.1	3.8	3.4	3.6	4.0	3.4	3.7
Lake Shinji		A	5	4.8	6.2	6.1	5.5	5.9	6.1	6.5	5.7	4.9	4.7
				4.3	5.4	5.4	4.8	5.1	5.1	5.3	4.9	4.1	4.3
Lake Kojima		B	2	8.0	7.9	8.1	7.5	8.0	7.8	7.7	7.4	7.6	7.2
				7.4	7.0	7.3	7.1	7.6	7.6	6.9	6.7	7.3	7.0
Overall average of designated lakes			46	5.5	6.0	5.8	5.9	6.0	5.9	6.0	5.7	5.5	5.9

Note:

- Upper rows indicate 75% of the Environmental Quality Standards values for COD. Lower rows for the annual average of the same.
- 75% values for COD refer to the highest among that in each point. The annual COD average values are taken from the average values of all measuring points.
- Value for the whole of a specified lakes is calculated from the mean value of each lake by averaging them.
(Hachirogata Regulating Pond was excluded until FY2007. It was included in FY 2008.)
- Hachirogata Regulating Pond was designated as a specified lake in December 2007.
- The number of points describe the number of measuring points of the Environmental Quality Standards in each lakes of FY2015.

Source: "Measurement Results of Water Quality in Public Waters FY2015," Ministry of the Environment

5.08 Achievement rate of Environmental Quality Standards for total nitrogen and total phosphorus in marine water

	Total Nitrogen			Total Phosphorus			Total Nitrogen, Total Phosphorus		
	Number of type-designated water areas	Number of achievement water areas	Achievement rate (%)	Number of type-designated water areas	Number of achievement water areas	Achievement rate (%)	Number of type-designated water areas	Number of achievement water areas	Achievement rate (%)
FY1995	9	2	22.2	9	4	44.4	9	2	22.2
1996	29	20	69.0	29	16	55.2	29	16	55.2
1997	49	33	67.3	49	32	65.3	49	27	55.1
1998	112	83	74.1	112	94	83.9	112	79	70.5
1999	124	96	77.4	124	107	86.3	124	90	72.6
2000	132	102	77.3	132	112	84.8	132	94	71.2
2001	145	128	88.3	145	127	87.6	145	119	82.1
2002	152	134	88.2	152	134	88.2	152	122	80.3
2003	152	135	88.8	152	135	88.8	152	128	84.2
2004	152	126	82.9	152	134	88.2	152	119	78.3
2005	152	131	86.2	152	134	88.2	152	125	82.2
2006	152	133	87.5	152	132	86.8	152	122	80.3
2007	152	141	92.8	152	133	87.5	152	125	82.2
2008	152	140	92.1	152	136	89.5	152	129	84.9
2009	151	143	94.7	151	128	84.8	151	123	81.5
2010	152	137	90.1	152	133	87.5	152	124	81.6
2011	151	142	94.0	151	132	87.4	151	128	84.8
2012	149	132	88.6	149	131	87.9	149	125	83.9
2013	149	141	94.6	149	137	91.9	149	132	88.6
2014	151	145	96.0	151	139	92.1	151	135	89.4
2015	151	145	96.0	151	134	88.7	151	131	86.8

Notes:

- Only when both Total Nitrogen and Total Phosphorus satisfy the Environmental Quality Standards (EQS.), an area is considered as achievement water area.
- No sea area is subjected to EQS for only Total Nitrogen nor for only Total Phosphorus.
- Survey on total Nitrogen and total Phosphorus in Sea area began in 1995.

Source: "Measurement Results of Water Quality in Public Waters FY2015," Ministry of the Environment

5.09 Achievement of Environment Standards for Total Nitrogen and Total Phosphorus in Lakes

	Total Nitrogen			Total Phosphorus			Total Nitrogen, Total Phosphorus		
	Number of type-designated water areas	Number of water areas achieving the standard	Achievement rate (%)	Number of type-designated water areas	Number of water areas achieving the standard	Achievement rate (%)	Number of type-designated water areas	Number of water areas achieving the standard	Achievement rate (%)
FY1984	3	0	0.0	3	0	0.0	3	0	0.0
1985	7	1	14.3	17	9	52.9	17	8	47.1
1986	15	2	13.3	31	17	54.8	31	15	48.4
1987	17	2	11.8	37	16	43.2	37	15	40.5
1988	21	1	4.8	42	16	38.1	42	13	31.0
1989	22	3	13.6	45	17	37.8	45	16	35.6
1990	22	3	13.6	47	24	51.1	47	20	42.6
1991	22	1	4.5	48	17	35.4	48	14	29.2
1992	22	1	4.5	48	23	47.9	48	18	37.5
1993	22	1	4.5	48	19	39.6	48	15	31.3
1994	23	1	4.3	49	23	46.9	49	20	40.8
1995	23	1	4.3	50	24	48.0	50	18	36.0
1996	24	3	12.5	51	27	52.9	51	24	47.1
1997	25	3	12.0	54	25	46.3	54	23	42.6
1998	27	3	11.1	60	25	41.7	60	23	38.3
1999	27	2	7.4	64	30	46.9	64	27	42.2
2000	28	2	7.1	67	31	46.3	67	27	40.3
2001	32	2	6.3	79	35	44.3	79	30	38.0
2002	32	3	9.4	81	34	42.0	81	28	34.6
2003	32	2	6.3	93	47	50.5	93	40	43.0
2004	35	3	8.6	98	50	51.0	98	43	43.9
2005	35	4	11.4	103	54	52.4	103	48	46.6
2006	35	3	8.6	109	57	52.3	109	50	45.9
2007	35	4	11.4	110	57	51.8	110	51	46.4
2008	37	3	8.1	112	64	57.1	112	56	50.0
2009	39	6	15.4	115	67	58.3	115	60	52.2
2010	38	5	13.2	117	62	53.0	117	59	50.4
2011	39	5	12.8	119	61	51.3	119	57	47.9
2012	39	5	12.8	119	65	54.6	119	61	51.3
2013	39	5	12.8	119	62	52.1	119	60	50.4
2014	39	6	15.4	121	64	52.9	121	61	50.4
2015	39	5	12.8	121	66	54.5	121	62	51.2

Notes:

- In "Total Nitrogen" column, "water areas achieving the standard" is water areas where the standards for Total Nitrogen is achieved.
- In "Total Phosphorus" column, "water areas achieving the standard" is water areas where the standards for Total Phosphorus are achieved.
- In regard to achievement of environment standards for Total Nitrogen and Total Phosphorus,
 - 1) For the water areas subject to environment standards both for Total Nitrogen and Total Phosphorus, they are classified as water area achieving the standard only when both Total Nitrogen and Total Phosphorus fulfill the environment standards.
 - 2) For the water areas subject to environment standard for Total Phosphorus only, they are classified as water area achieving the standard only when Total Phosphorus fulfills the environment standards.
- Survey on Total Nitrogen and Total Phosphorus in Lake began in 1984.

Source: "Measurement Results of Water Quality in Public Waters FY2015," Ministry of the Environment

5.10 Generation Loads and Reduction Targets for 3 Sea Areas with Area-wide Total Pollutant Controls by Source

① Generation load and reduction target for COD for 3 seas areas with Area-wide Total Pollutant Controls by Source

(Unit: t / day)

		Actual									Reduction Target
		FY1979	1984	1989	1994	1999	2004	2009	2014	FY2019	
Tokyo Bay	Domestic Wastewater	324	290	243	197	167	144	124	110	103	
	Industrial Wastewater	115	83	76	59	52	42	36	34	33	
	Others	38	40	36	30	28	25	23	19	19	
	Sub Total	477	413	355	286	247	211	183	163	155	
Ise Bay	Domestic Wastewater	151	150	141	134	118	99	81	69	63	
	Industrial Wastewater	119	101	97	83	76	65	57	54	52	
	Others	37	35	34	29	27	22	20	18	18	
	Sub Total	307	286	272	246	221	186	158	141	133	
Seto Inland Sea	Domestic Wastewater	488	444	400	365	319	261	221	180	163	
	Industrial Wastewater	429	367	356	309	286	245	193	173	190	
	Others	95	89	82	72	67	55	54	51	51	
	Sub Total	1,012	900	838	746	672	561	468	404	404	
Total	Domestic Wastewater	963	884	784	696	604	504	426	359	329	
	Industrial Wastewater	663	551	529	451	414	352	286	261	275	
	Others	170	164	152	131	122	102	97	88	88	
	Total	1,796	1,599	1,465	1,278	1,140	958	809	708	692	

Notes:

- Reduction target volume during FY2019 was formulated at the eighth series of total pollutant load control.
- The target years for load reduction are as follows: The first series: FY 1984, the second: FY1989, the third: FY1994, the forth: FY1999, the fifth: FY2004, the sixth: FY 2009, the seventh: FY2014 and the eighth: FY2019.

Source: Materials by Ministry of the Environment

② Generation load and reduction target for Nitrogen Content for 3 seas areas with Area-wide Total Pollutant Controls by Source

		Actual									Reduction Target
		FY1979	1984	1989	1994	1999	2004	2009	2014	FY2019	
Tokyo Bay	Domestic Wastewater	201	187	183	175	164	136	122	111	108	
	Industrial Wastewater	96	82	72	50	41	29	26	25	24	
	Others	67	64	64	55	49	43	37	34	34	
	Sub Total	364	333	319	280	254	208	185	170	166	
Ise Bay	Domestic Wastewater	69	73	64	64	60	52	47	42	40	
	Industrial Wastewater	52	49	42	39	29	26	22	21	21	
	Others	66	63	62	58	54	51	49	47	47	
	Sub Total	188	185	168	161	143	129	118	110	108	
Seto Inland Sea	Domestic Wastewater	189	188	201	205	184	159	143	125	123	
	Industrial Wastewater	249	225	223	259	191	117	95	87	100	
	Others	228	226	232	233	221	200	195	178	179	
	Sub Total	666	639	656	697	596	476	433	390	402	
Total	Domestic Wastewater	459	448	448	444	408	347	312	278	271	
	Industrial Wastewater	397	356	337	348	261	172	143	133	145	
	Others	361	353	358	346	324	294	281	259	260	
	Sub Total	1,218	1,157	1,143	1,138	993	813	736	670	676	

Notes:

- The pollutant load reduction target volume during FY2019 was formulated at the eighth series of total pollutant load control.
- Reduction of nitrogen content was implemented from the fifth series. The target years of the fifth, sixth, seventh, and eighth series are 2004, 2009, 2014, and 2019 respectively.
- Actual figures in 1994 or before are aggregated data of the prefectures involved.

Source: Materials by Ministry of the Environment

③ Transition of pollutant load generation in the total pollutant load control areas and the pollutant load reduction target for phosphorus

		Actual									Reduction Target
		FY1979	1984	1989	1994	1999	2004	2009	2014	FY2019	
Tokyo Bay	Domestic Wastewater	24.9	17.6	15.1	14.2	13.5	10.4	9.0	8.8	8.3	
	Industrial Wastewater	9.5	6.4	5.2	4.3	3.5	1.8	1.4	1.4	1.5	
	Others	6.8	6.2	5.6	4.5	4.1	3.1	2.5	2.1	1.9	
	Sub Total	41.2	30.2	25.9	23.0	21.1	15.3	12.9	12.3	11.7	
Ise Bay	Domestic Wastewater	9.8	6.7	6.3	6.4	6.5	5.1	4.3	3.7	3.4	
	Industrial Wastewater	7.0	6.5	5.3	4.8	4.1	2.9	2.5	2.3	2.1	
	Others	7.6	7.2	7.2	6.1	4.6	2.8	2.2	2.2	2.3	
	Sub Total	24.4	20.4	18.8	17.3	15.2	10.8	9.0	8.2	7.8	
Seto Inland Sea	Domestic Wastewater	29.6	19.1	16.6	16.8	16.0	12.4	11.4	10.2	10.0	
	Industrial Wastewater	20.4	16.2	14.2	13.3	13.2	8.0	6.5	5.7	6.3	
	Others	12.9	11.7	11.9	11.0	11.2	10.2	10.1	8.7	8.9	
	Sub Total	62.9	47.0	42.7	41.1	40.4	30.6	28.0	24.6	25.2	
Total	Domestic Wastewater	64.3	43.4	38.0	37.4	36.0	27.9	24.7	22.7	21.7	
	Industrial Wastewater	36.9	29.1	24.7	22.4	20.8	12.7	10.4	9.4	9.9	
	Others	27.3	25.1	24.7	21.6	19.9	16.1	14.8	13.0	13.1	
	Sub Total	128.5	97.6	87.4	81.4	76.7	56.7	49.9	45.1	44.7	

Notes:

- The pollutant load reduction target volume during FY2019 was formulated at the eighth series of total pollutant load control.
- Reduction of phosphorus content was implemented from the fifth series. The target years of the fifth, sixth, seventh, and eighth series are 2004, 2009, 2014, and 2019 respectively.
- Actual figures in 1994 or before are aggregated data of the prefectures involved.

Source: Materials by Ministry of the Environment

5.11 Number of occurrences of Red Tides in Seto Inland Sea

	Number of confirmed cases of occurrence	Number of confirmed cases causing fishery damage
1971	136	39
1972	164	23
1973	210	18
1974	269	17
1975	255	29
1976	299	18
1977	196	27
1978	151	15
1979	172	17
1980	188	8
1981	171	8
1982	166	18
1983	165	13
1984	130	5
1985	170	8
1986	162	14
1987	107	12
1988	117	10
1989	124	6
1990	108	7
1991	107	5
1992	100	6
1993	105	6
1994	96	2
1995	90	10
1996	89	12
1997	135	11
1998	105	11
1999	112	7
2000	106	10
2001	97	7
2002	89	8
2003	106	8
2004	118	13
2005	115	7
2006	94	11
2007	99	9
2008	116	19
2009	104	7
2010	91	9
2011	89	11
2012	116	18
2013	83	9
2014	97	13
2015	80	16

Source: "Red tides in Seto Inland Sea," Ministry of Agriculture, Forestry and Fisheries

5.12 Licensed landfill area of Seto inland sea

	Area (ha)
FY1965	2,197.2
1966	479.9
1967	1,230.0
1968	1,010.3
1969	3,595.2
1970	1,464.9
1971~1973	6,391.5
1974	390.3
1975	546.9
1976	266.1
1977	1,040.5
1978	991.3
1979	271.6
1980	534.1
1981	300.9
1982	110.7
1983	427.9
1984	206.9
1985	198.2
1986	266.8
1987	1,691.5
1988	399.9
1989	379.3
1990	265.2
1991	173.7
1992	147.8
1993	244.3
1994	462.0
1995	565.7
1996	315.7
1997	462.3
1998	465.3
1999	1,016.0
2000	146.3
2001	398.2
2002	35.2
2003	49.5
2004	43.9
2005	76.5
2006	17.8
2007	37.6
2008	94.4
2009	14.9
2010	33.4
2011	18.4
2012	1.8
2013	68.4
2014	38.0
2015	1.1
2016	61.8

Notes:

- From 1965 through 1970, a cumulative total from 1st January to 31st December is shown. After 1974, that from 2nd November in the previous year to 1st November is shown.
- Figure for "1971 ~ 1973" is a cumulative total from 1st January 1971 to 1st November 1973.

Source: Materials by Ministry of the Environment

5.13 Amount of sea gravel extracted in coastal prefectures in Seto Inland Sea

	Amount of sea gravel extracted (thousand/m ³)
FY1968	6,052
1969	12,745
1970	21,966
1971	17,750
1972	17,301
1973	22,829
1974	21,975
1975	21,245
1976	20,187
1977	23,379
1978	28,384
1979	30,017
1980	29,314
1981	26,463
1982	25,828
1983	25,021
1984	23,274
1985	24,093
1986	24,356
1987	29,719
1988	27,056
1989	25,512
1990	25,491
1991	24,254
1992	24,904
1993	23,179
1994	23,958
1995	25,152
1996	23,913
1997	20,396
1998	19,904
1999	19,282
2000	17,397
2001	14,938
2002	13,123
2003	9,881
2004	9,435
2005	7,072
2006	4,628
2007	5,160
2008	4,931
2009	4,309
2010	3,687
2011	3,420
2012	3,640
2013	4,302
2014	4,311
2015	3,846

Note:

Including amount of sea gravel extracted outside the scope of Law concerning Special Measures for Conservation of the Environment of the Seto Inland Sea.

Source: "Schedules of status report of gravel extraction work," Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure, Transport and Tourism

5.14 Groundwater contamination - Yearly number of confirmed cases where contamination level exceeds the standards

("Year" is the fiscal year when cases were identified by the authority)

	Number of confirmed contamination incidents									
	Total		VOC		Heavy Metals		Nitric acid/nitrous acid		Complex contamination	
~FY1983	76	(32)	63	(23)	9	(6)	2	(1)	2	(2)
1984	55	(24)	50	(22)	4	(2)	0	(0)	1	(0)
1985	75	(32)	75	(32)	0	(0)	0	(0)	0	(0)
1986	46	(20)	46	(20)	0	(0)	0	(0)	0	(0)
1987	60	(27)	54	(25)	2	(0)	2	(2)	2	(0)
1988	98	(45)	94	(43)	0	(0)	2	(0)	2	(2)
1989	236	(123)	215	(108)	16	(13)	2	(0)	3	(2)
1990	210	(99)	181	(82)	21	(12)	5	(3)	3	(2)
1991	146	(67)	122	(57)	18	(7)	5	(2)	1	(1)
1992	115	(54)	91	(41)	15	(8)	4	(4)	5	(1)
1993	143	(61)	62	(33)	55	(20)	24	(6)	2	(2)
1994	148	(83)	63	(34)	56	(36)	29	(13)	0	(0)
1995	165	(75)	62	(27)	44	(25)	59	(23)	0	(0)
1996	163	(88)	53	(24)	55	(35)	55	(29)	0	(0)
1997	184	(93)	42	(22)	56	(28)	82	(40)	4	(3)
1998	284	(163)	136	(91)	41	(23)	102	(47)	5	(2)
1999	345	(220)	93	(57)	72	(39)	176	(123)	4	(1)
2000	427	(307)	87	(52)	106	(75)	224	(172)	10	(8)
2001	385	(277)	68	(39)	78	(60)	230	(172)	9	(6)
2002	388	(273)	64	(35)	79	(51)	239	(182)	6	(5)
2003	455	(312)	74	(46)	86	(54)	287	(206)	8	(6)
2004	411	(284)	90	(45)	107	(73)	205	(160)	9	(6)
2005	369	(237)	100	(49)	114	(77)	146	(107)	9	(4)
2006	359	(259)	94	(44)	108	(82)	139	(120)	18	(13)
2007	348	(258)	81	(38)	120	(97)	140	(118)	7	(5)
2008	313	(239)	50	(28)	118	(93)	133	(110)	12	(8)
2009	294	(232)	62	(36)	97	(75)	129	(116)	6	(5)
2010	271	(231)	39	(24)	97	(82)	130	(120)	5	(5)
2011	253	(218)	45	(34)	96	(79)	106	(101)	6	(4)
2012	236	(220)	35	(30)	109	(103)	88	(83)	4	(4)
2013	286	(277)	54	(50)	115	(110)	115	(115)	2	(2)
2014	250	(244)	44	(40)	106	(105)	99	(98)	1	(1)
2015	207	(206)	25	(25)	87	(86)	94	(94)	1	(1)
Parameter	7,801	(5,380)	2,514	(1,356)	2,087	(1,556)	3,053	(2,367)	147	(101)

Note:

Parenthesized figures are the total number of cases of exceeding the standards" and cases of temporarily exceeding" as of the end of FY2015.

Source: "Test result of groundwater quality measurement in FY2015," Ministry of the Environment

5.15 Itemized breakdown of groundwater contamination cases

(As of the end of fiscal year 2015)

Item category	Item name		Number of cases				
			Excess cases		Temporary achievement cases	Improvement case	Non-survey case
			Cases that exceeds	Cases that does not exceed currently (Note 2)			
VOC	Dichloromethane	59	14	15	11	18	1
	Carbon tetrachloride	109	29	25	11	42	2
	Vinyl chloride monomer	201	120	30	30	16	5
	1,2-dichloroethane	83	24	23	8	23	5
	1,1-dichloroethylene	267	27	120	33	78	9
	1,2-dichloroethylene	356	162	84	61	35	14
	1,1,1-trichloroethane	125	8	29	19	60	9
	1,1,2-trichloroethane	39	12	11	5	11	0
	Trichloroethylene	1,228	435	140	183	370	100
	Tetrachloroethylene	1,428	515	78	242	448	145
	1,3-dichloropropene	0	0	0	0	0	0
	Benzene	303	90	13	31	154	15
	1,4-dioxane	17	15	2	0	0	0
Heavy metals	Cadmium	20	10	1	3	6	0
	Total cyanide	49	25	6	6	11	1
	Lead	310	80	27	51	119	33
	Hexavalent chromium	76	33	4	18	19	2
	Arsenic	1258	855	17	125	137	124
	Total mercury	127	49	7	15	38	18
	Alkyl mercury	3	2	1	0	0	0
	PCB	10	4	1	0	4	1
	Thiuram	0	0	0	0	0	0
	Simazine	0	0	0	0	0	0
	Thiobencarb	0	0	0	0	0	0
	Selenium	23	16	2	0	3	2
	Fluorine	522	342	17	67	48	48
	Boron	210	135	12	22	20	21
Nitrate nitrogen and nitrite nitrogen		3,053	1,775	0	592	484	202
Parameter		7,801		4,096	1,284	1,777	644

Notes:

- 1) Contamination may happen in multiple items in one case, and the total may not foot the parameter.
- 2) "Item that does not exceed currently" refers to the case where contamination happened multiple times in the past and currently EQS is satisfied as to the indicated item but as to other items EQS is not satisfied.

Source: "Results of the FY 2015 Water Quality Survey of underground water," Ministry of the Environment

5.16 Results of groundwater quality survey (1)

Researched groups	Research-ed items	General monitoring survey			Survey of contaminated wells and vicinities		Continuance surveillance or Regular monitoring survey		Remarks	
		Number of survey	Exceeding number	Exceeding rate (%)	Number of survey	Exceeding number	Number of survey	Exceeding rate	Standard type	Standard value
Cadmium	1997	2,094	0	0.0	41	0	748	0	Environmental standards	0.01mg/L or less
	1998	3,102	0	0.0	50	0	340	0		
	1999	3,152	1	0.0	30	0	333	0		
	2000	2,997	0	0.0	35	0	252	0		
	2001	3,003	0	0.0	45	0	237	0		
	2002	3,242	0	0.0	25	0	298	0		
	2003	3,591	0	0.0	31	0	308	0		
	2004	3,247	0	0.0	73	0	246	0		
	2005	3,092	0	0.0	56	0	216	0		
	2006	3,166	0	0.0	27	0	117	0		
	2007	3,160	0	0.0	56	0	154	0		
	2008	2,871	0	0.0	48	0	230	0		
	2009	3,185	0	0.0	24	0	79	0		
	2010	2,996	0	0.0	52	0	54	0		
	2011	2,910	2	0.1	76	0	31	1		
	2012	2,899	0	0.0	24	0	49	2		
	2013	2,904	0	0.0	24	0	44	2	0.003mg/L or less	
	2014	2,704	0	0.0	20	0	43	1		
	2015	2,658	1	0.0	45	0	46	1		
Total cyanide	1997	1,909	0	0.0	45	0	715	0	Environmental standards	Should not be detected
	1998	2,659	0	0.0	42	0	282	0		
	1999	2,786	0	0.0	25	0	297	0		
	2000	2,616	0	0.0	26	0	230	0		
	2001	2,660	0	0.0	47	0	225	0		
	2002	2,639	0	0.0	28	2	284	0		
	2003	2,870	0	0.0	50	2	300	0		
	2004	2,723	0	0.0	46	0	236	0		
	2005	2,830	0	0.0	28	0	218	1		
	2006	2,904	0	0.0	40	0	120	1		
	2007	2,737	0	0.0	44	0	155	0		
	2008	2,508	0	0.0	40	0	234	0		
	2009	2,904	0	0.0	21	0	101	0		
	2010	2,774	0	0.0	36	0	73	0		
	2011	2,713	0	0.0	30	0	54	0		
	2012	2,642	0	0.0	27	0	60	1		
	2013	2,736	0	0.0	26	0	55	0		
	2014	2,534	0	0.0	22	0	58	0		
	2015	2,479	0	0.0	32	0	62	0		
Lead	1997	2,456	8	0.3	71	6	771	8	Environmental standards	0.01mg/L or less
	1998	3,312	8	0.2	90	1	374	5		
	1999	3,198	15	0.5	84	0	374	7		
	2000	3,360	10	0.3	82	3	298	13		
	2001	3,362	13	0.4	110	4	275	6		
	2002	3,484	8	0.2	149	7	346	8		
	2003	3,689	21	0.6	164	6	349	7		
	2004	3,566	14	0.4	145	2	344	11		
	2005	3,374	15	0.4	162	6	306	10		
	2006	3,484	8	0.2	130	2	220	10		
	2007	3,466	12	0.3	296	4	283	8		
	2008	3,193	10	0.3	232	7	360	10		
	2009	3,219	11	0.3	115	1	189	9		
	2010	3,041	12	0.4	426	14	173	9		
	2011	2,975	13	0.4	282	4	149	16		
	2012	2,962	12	0.4	138	2	178	15		
	2013	2,964	9	0.3	215	4	205	13		
	2014	2,755	7	0.3	66	2	197	13		
	2015	2,712	3	0.1	101	2	201	17		
Hexavalent chromium	1997	2,290	1	0.0	45	0	781	12	Environmental standards	0.05mg/L or less
	1998	3,232	0	0.0	60	0	403	11		
	1999	3,129	0	0.0	25	0	376	11		
	2000	3,187	1	0.0	49	2	285	9		
	2001	3,175	0	0.0	38	2	264	11		
	2002	3,308	0	0.0	25	0	325	11		
	2003	3,562	1	0.0	60	1	334	10		
	2004	3,420	0	0.0	49	0	291	15		
	2005	3,286	0	0.0	58	0	267	14		
	2006	3,387	0	0.0	58	1	173	15		
	2007	3,388	1	0.0	74	0	208	15		
	2008	3,116	0	0.0	68	1	294	15		
	2009	3,189	0	0.0	48	27	140	14		
	2010	3,015	0	0.0	43	0	124	21		
	2011	2,882	0	0.0	33	0	117	22		
	2012	2,849	0	0.0	50	0	129	20		
	2013	2,869	0	0.0	43	0	139	23		
	2014	2,662	0	0.0	58	0	139	22		
	2015	2,625	2	0.1	57	2	140	26		
Arsenic	1997	2,564	52	2.0	264	53	1,059	192	Environmental standards	0.01mg/L or less
	1998	3,424	45	1.3	275	32	688	234		
	1999	3,310	45	1.4	186	29	695	223		
	2000	3,386	65	1.9	380	83	613	238		
	2001	3,422	44	1.3	284	108	626	246		
	2002	3,520	53	1.5	255	49	720	261		
	2003	3,760	54	1.4	217	32	727	270		
	2004	3,666	74	2.0	441	138	727	285		
	2005	3,457	61	1.8	411	100	834	293		
	2006	3,663	78	2.1	318	66	786	301		
	2007	3,591	73	2.0	326	71	693	305		
	2008	3,239	77	2.4	394	107	826	315		
	2009	3,338	63	1.9	236	43	568	292		
	2010	3,088	66	2.1	589	78	580	300		
	2011	3,038	57	1.9	440	85	582	308		
	2012	3,017	68	2.3	331	67	600	313		
	2013	3,020	63	2.1	383	47	647	332		
	2014	2,816	69	2.5	301	29	644	361		
	2015	2,764	60	2.2	247	38	640	352		

5.16 Results of groundwater quality survey (2)

Researched groups	Researched items	General monitoring survey			Survey of contaminated wells and vicinities		Continuance surveillance or Regular monitoring survey		Remarks	
		Number of survey	Exceeding number	Exceeding rate (%)	Number of survey	Exceeding number	Number of survey	Exceeding rate	Standard type	Standard value
Total mercury	1989	1,547	0	0	0	0	51	0	Environmental standards	0.0005mg/L or less
	1990	3,229	4	0.1	66	5	287	0		
	1991	2,978	3	0.1	92	9	504	11		
	1992	2,781	3	0.1	67	4	622	14		
	1993	2,626	3	0.1	129	10	657	15		
	1994	2,203	0	0.0	60	0	726	17		
	1995	2,145	2	0.1	76	3	715	11		
	1996	2,082	1	0.0	329	31	746	16		
	1997	2,102	1	0.0	53	0	809	15		
	1998	2,961	1	0.0	68	5	413	15		
	1999	3,084	0	0.0	55	2	383	16		
	2000	2,833	2	0.1	43	2	302	16		
	2001	2,907	3	0.1	270	34	300	18		
	2002	3,253	0	0.0	44	0	351	15		
	2003	3,318	1	0.0	60	0	353	9		
	2004	3,235	5	0.2	63	4	289	12		
	2005	3,120	3	0.1	108	6	256	14		
	2006	3,234	3	0.1	35	3	157	14		
	2007	3,233	5	0.2	73	8	197	13		
	2008	2,944	2	0.1	71	5	275	25		
	2009	3,154	2	0.1	39	4	145	23		
	2010	2,999	0	0.0	45	2	119	24		
	2011	2,908	0	0.0	75	3	107	21		
	2012	2,886	1	0.0	46	5	117	19		
	2013	2,900	1	0.0	68	4	113	20		
	2014	2,701	1	0.0	51	6	104	24		
	2015	2,660	0	0.0	44	3	103	20		
Alkyl mercury	1997	748	0	0.0	38	0	513	0	Environmental standards	Should not be detected
	1998	1,315	0	0.0	21	0	121	0		
	1999	1,278	0	0.0	37	0	85	0		
	2000	1,048	0	0.0	26	0	57	0		
	2001	1,075	0	0.0	43	0	61	0		
	2002	1,020	0	0.0	25	0	108	0		
	2003	931	0	0.0	24	0	106	0		
	2004	993	0	0.0	33	0	52	0		
	2005	1,008	0	0.0	77	0	34	0		
	2006	762	0	0.0	21	0	38	0		
	2007	683	0	0.0	22	0	50	0		
	2008	545	0	0.0	22	0	53	0		
	2009	523	0	0.0	30	0	43	0		
	2010	500	0	0.0	35	0	38	0		
	2011	692	0	0.0	22	0	38	0		
	2012	450	0	0.0	26	0	41	0		
	2013	642	0	0.0	25	0	44	0		
	2014	526	0	0.0	27	0	40	0		
	2015	699	0	0.0	26	0	23	0		
P C B	1997	1,096	0	0.0	21	0	548	0	Environmental standards	Should not be detected
	1998	1,852	0	0.0	21	0	141	0		
	1999	1,930	0	0.0	25	0	132	0		
	2000	1,818	0	0.0	26	0	113	0		
	2001	2,044	0	0.0	26	0	125	0		
	2002	1,738	0	0.0	25	0	164	0		
	2003	1,816	0	0.0	24	0	148	0		
	2004	1,899	0	0.0	26	0	117	0		
	2005	1,883	0	0.0	30	0	61	0		
	2006	1,830	0	0.0	21	0	53	0		
	2007	1,732	0	0.0	21	0	45	0		
	2008	1,685	0	0.0	48	0	55	0		
	2009	2,082	0	0.0	21	0	30	0		
	2010	2,005	0	0.0	35	0	32	0		
	2011	1,946	0	0.0	23	0	15	0		
	2012	1,969	0	0.0	22	0	20	0		
	2013	2,057	2	0.0	40	0	16	0		
	2014	2,022	0	0.0	23	0	19	2		
	2015	1,957	0	0.0	28	0	18	2		
Trichlorethylene	1997	3,692	5	0.1	617	19	3,912	279	Environmental standards	0.03mg/L or less
	1998	4,492	17	0.4	1,251	34	3,301	242		
	1999	4,455	15	0.3	916	37	3,338	267		
	2000	4,225	22	0.5	846	47	3,054	292		
	2001	4,371	11	0.3	586	14	3,070	301		
	2002	4,414	10	0.2	436	21	2,954	286		
	2003	4,473	16	0.4	457	22	3,001	265		
	2004	4,234	18	0.4	457	19	2,922	243		
	2005	3,968	11	0.3	370	21	2,704	263		
	2006	3,911	6	0.2	346	15	2,490	260		
	2007	3,948	7	0.2	314	13	2,331	231		
	2008	3,658	3	0.1	431	22	2,470	237		
	2009	3,676	2	0.1	411	14	2,220	226		
	2010	3,366	1	0.0	464	15	2,123	215		
	2011	3,285	1	0.0	387	13	2,049	182		
	2012	3,245	2	0.1	468	8	2,021	171		
	2013	3,235	4	0.1	413	9	1,997	157		
	2014	2,965	7	0.2	440	25	1,941	279		
	2015	2,942	2	0.1	292	9	1,897	260		0.01mg/L or less

5.16 Results of groundwater quality survey (3)

Research- ed items Researched groups		General monitoring survey			Survey of contaminated wells and vicinities		Continuance surveillance or Regular monitoring survey		Remarks	
		Number of survey	Exceeding number	Exceeding rate (%)	Number of survey	Exceeding number	Number of survey	Exceeding rate	Standard type	Standard value
Tetrachlorethylene	1997	3,692	8	0.2	635	40	3,965	696	Environmental standards	0.01mg/L or less
	1998	4,492	28	0.6	1,255	73	3,362	645		
	1999	4,451	23	0.5	921	49	3,376	589		
	2000	4,225	17	0.4	825	15	3,104	653		
	2001	4,374	10	0.2	620	39	3,072	624		
	2002	4,414	7	0.2	435	31	2,945	595		
	2003	4,472	21	0.5	431	22	2,992	586		
	2004	4,248	22	0.5	477	39	2,950	556		
	2005	3,961	6	0.2	328	39	2,710	559		
	2006	3,922	13	0.3	346	21	2,509	537		
	2007	3,938	12	0.3	323	21	2,327	543		
	2008	3,660	9	0.2	411	24	2,472	520		
	2009	3,679	5	0.1	405	30	2,186	513		
	2010	3,363	4	0.1	453	8	2,083	473		
	2011	3,283	7	0.2	393	18	2,004	448		
	2012	3,242	3	0.1	430	26	1,967	414		
	2013	3,233	7	0.2	390	17	1,945	424		
1,1,1- trichloroethane	2004	2,958	8	0.3	423	18	1,885	417	Environmental standards	1mg/L or less
	2015	2,936	3	0.1	257	7	1,830	404		
	1997	3,603	0	0.0	612	0	3,636	0		
	1998	4,436	1	0.0	1,189	0	3,123	0		
	1999	4,362	0	0.0	879	0	2,987	3		
	2000	4,219	0	0.0	808	0	2,539	2		
	2001	4,290	0	0.0	564	0	2,586	3		
	2002	4,270	0	0.0	377	0	2,379	2		
	2003	4,312	0	0.0	359	0	2,417	2		
	2004	3,990	0	0.0	389	0	2,320	3		
	2005	3,739	0	0.0	207	0	2,123	1		
	2006	3,717	0	0.0	187	0	1,820	0		
	2007	3,635	0	0.0	193	0	1,631	0		
	2008	3,473	0	0.0	172	0	1,608	0		
	2009	3,430	0	0.0	186	0	1,443	0		
	2010	3,222	0	0.0	309	0	1,355	0		
	2011	3,189	0	0.0	239	0	1,212	0		
Carbon tetrachloride	2012	3,150	0	0.0	216	0	1,196	0	Environmental standards	0.002mg/L or less
	2013	3,136	0	0.0	207	0	1,162	0		
	2014	2,872	0	0.0	225	0	1,109	0		
	2015	2,842	0	0.0	137	0	1,088	0		
	1997	2,828	2	0.1	253	2	1,843	22		
	1998	3,631	2	0.1	388	2	1,376	24		
	1999	3,695	3	0.1	372	0	1,413	21		
	2000	3,675	2	0.1	291	3	1,272	24		
	2001	3,700	0	0.0	313	2	1,341	22		
	2002	3,814	3	0.1	232	5	1,323	22		
	2003	3,824	0	0.0	146	0	1,318	22		
	2004	3,661	4	0.1	221	2	1,287	23		
	2005	3,554	3	0.1	106	1	1,017	26		
	2006	3,628	3	0.1	103	4	888	23		
	2007	3,536	0	0.0	96	0	798	25		
	2008	3,379	0	0.0	72	2	799	26		
	2009	3,340	1	0.0	102	1	702	24		
Dichloromethane	2010	3,120	1	0.0	193	1	653	29	Environmental standards	0.02mg/L or less
	2011	3,036	0	0.0	153	2	567	21		
	2012	3,005	0	0.0	170	3	556	19		
	2013	2,986	1	0.0	182	3	513	16		
	2014	2,740	0	0.0	156	3	532	15		
	2015	2,710	0	0.0	108	3	507	14		
	1997	2,805	2	0.1	124	0	1,167	0		
	1998	3,729	1	0.0	349	0	768	0		
	1999	3,740	0	0.0	223	0	770	3		
	2000	3,534	0	0.0	229	0	744	0		
	2001	3,548	1	0.0	280	0	802	0		
	2002	3,635	1	0.0	146	0	835	0		
	2003	3,865	1	0.0	169	1	890	0		
	2004	3,535	0	0.0	141	0	877	0		
	2005	3,381	0	0.0	52	0	730	1		
	2006	3,455	0	0.0	97	1	627	1		
	2007	3,370	0	0.0	88	0	571	0		
1,2- dichloroethane	2008	3,276	0	0.0	72	0	557	0	Environmental standards	0.004mg/L or less
	2009	3,349	0	0.0	98	0	486	0		
	2010	3,178	0	0.0	141	0	467	0		
	2011	3,121	0	0.0	145	0	398	0		
	2012	3,077	0	0.0	138	0	389	0		
	2013	3,087	0	0.0	106	0	360	0		
	2014	2,823	0	0.0	137	0	382	0		
	2015	2,793	0	0.0	104	0	373	0		
	1997	2,762	1	0.0	123	0	1,295	2		
	1998	3,580	0	0.0	328	9	867	5		
	1999	3,687	1	0.0	254	0	1,030	7		
	2000	3,301	0	0.0	296	6	959	6		
	2001	3,316	0	0.0	345	1	1,055	12		
	2002	3,360	2	0.1	155	0	1,094	11		
	2003	3,555	0	0.0	148	0	1,129	9		
	2004	3,267	0	0.0	172	0	1,104	9		
	2005	3,136	0	0.0	55	0	1,102	7		
	2006	3,300	1	0.0	120	1	872	8		
	2007	3,198	0	0.0	112	0	690	10		
	2008	3,120	0	0.0	88	0	650	5		
	2009	3,203	0	0.0	105	0	580	7		
	2010	3,025	0	0.0	177	1	597	4		
	2011	2,984	0	0.0	145	0	535	3		
	2012	2,953	0	0.0	178	0	516	5		
	2013	2,984	0	0.0	122	0	507	2		
	2014	2,985	1	0.0	182	3	513	16		
	2015	2,733	0	0.0	171	0	516	1		

5.16 Results of groundwater quality survey(4)

Research- ed items Researched groups		General monitoring survey			Survey of contaminated wells and vicinities		Continuance surveillance or Regular monitoring survey		Remarks	
		Number of survey	Exceeding number	Exceeding rate (%)	Number of survey	Exceeding number	Number of survey	Exceeding rate	Standard type	Standard value
1,1- dichloroethylene	1997	2,862	0	0.0	351	3	2,010	24	Environmental standards	0.02mg/L or less
	1998	3,594	2	0.1	905	9	1,685	26		
	1999	3,727	1	0.0	729	3	1,804	35		
	2000	3,650	2	0.1	702	11	1,831	37		
	2001	3,668	0	0.0	535	1	1,964	41		
	2002	3,771	1	0.0	244	0	1,967	40		
	2003	3,846	0	0.0	322	2	2,032	38		
	2004	3,744	2	0.1	404	2	2,077	39		
	2005	3,584	1	0.0	264	4	2,026	46		
	2006	3,651	0	0.0	215	0	1,890	33		
	2007	3,567	0	0.0	225	1	1,843	30		
	2008	3,337	0	0.0	340	0	1,885	31		
	2009	3,306	0	0.0	347	0	1,804	2		
	2010	3,078	0	0.0	468	0	1,764	4		
	2011	3,037	0	0.0	342	0	1,750	3		
	2012	3,001	0	0.0	419	0	1,721	3		
1,1,2- trichloroethane	2013	2,979	0	0.0	378	0	1,689	2	Environmental standards	0.1mg/L or less
	2014	2,723	0	0.0	403	1	1,647	2		
	2015	2,695	0	0.0	253	0	1,630	1		
	1997	2,836	0	0.0	123	0	1,264	0		
	1998	3,574	0	0.0	174	0	854	0		
	1999	3,679	0	0.0	239	0	989	6		
	2000	3,286	0	0.0	278	2	962	6		
	2001	3,308	0	0.0	307	1	1,052	4		
	2002	3,359	0	0.0	146	0	1,084	5		
	2003	3,590	0	0.0	148	0	1,120	3		
	2004	3,259	1	0.0	191	1	1,107	2		
	2005	3,127	0	0.0	74	0	1,014	4		
	2006	3,240	1	0.0	159	2	773	4		
	2007	3,136	1	0.0	118	0	715	9		
	2008	2,987	0	0.0	65	2	659	3		
	2009	3,170	1	0.0	123	0	583	1		
1,3- dichloropropene	2010	2,938	0	0.0	175	0	599	1	Environmental standards	0.006mg/L or less
	2011	2,878	0	0.0	153	0	522	0		
	2012	2,851	1	0.0	183	0	529	1		
	2013	2,876	0	0.0	121	0	509	0		
	2014	2,630	0	0.0	191	0	535	1		
	2015	2,604	0	0.0	69	0	527	0		
	1997	2,586	0	0.0	93	0	785	0		
	1998	3,179	0	0.0	98	0	368	0		
	1999	3,181	0	0.0	178	0	385	0		
	2000	3,039	0	0.0	162	0	372	0		
	2001	2,898	0	0.0	81	0	412	0		
	2002	3,085	0	0.0	95	0	454	0		
	2003	3,082	0	0.0	115	0	509	0		
	2004	3,043	0	0.0	103	0	520	0		
	2005	2,886	0	0.0	41	0	437	0		
	2006	2,940	0	0.0	71	0	347	0		
Thiuram	2007	2,883	0	0.0	78	0	294	0	Environmental standards	0.006mg/L or less
	2008	2,799	0	0.0	46	0	317	0		
	2009	2,922	0	0.0	89	0	261	0		
	2010	2,773	0	0.0	124	0	270	0		
	2011	2,661	0	0.0	93	0	216	0		
	2012	2,646	0	0.0	116	0	220	0		
	2013	2,645	0	0.0	30	0	210	0		
	2014	2,392	0	0.0	137	0	234	0		
	2015	2,364	0	0.0	31	0	231	0		
	1997	2,376	0	0.0	16	0	609	0		
	1998	2,764	0	0.0	8	0	195	0		
	1999	2,490	0	0.0	2	0	186	0		
	2000	2,528	0	0.0	10	0	171	0		
	2001	2,506	0	0.0	2	0	201	0		
	2002	2,494	0	0.0	3	0	258	0		
Simazine	2003	2,625	0	0.0	2	0	233	0	Environmental standards	0.003mg/L or less
	2004	2,472	0	0.0	4	0	204	0		
	2005	2,322	0	0.0	4	0	222	0		
	2006	2,411	0	0.0	1	0	92	0		
	2007	2,404	0	0.0	0	0	81	0		
	2008	2,330	0	0.0	15	0	90	0		
	2009	2,585	0	0.0	0	0	53	0		
	2010	2,509	0	0.0	14	0	47	0		
	2011	2,432	0	0.0	1	0	32	0		
	2012	2,451	0	0.0	1	0	35	0		
	2013	2,460	0	0.0	2	0	34	0		
	2014	2,263	0	0.0	3	0	33	0		
	2015	2,241	0	0.0	7	0	36	0		
	1997	2,369	0	0.0	16	0	598	0		
	1998	2,826	0	0.0	41	0	194	0		
	1999	2,549	0	0.0	2	0	190	0		
	2000	2,508	0	0.0	10	0	174	0		
	2001	2,638	0	0.0	7	0	205	0		
	2002	2,547	0	0.0	3	0	258	0		
	2003	2,614	0	0.0	2	0	233	0		
	2004	2,628	0	0.0	4	0	204	0		
	2005	2,402	0	0.0	4	0	222	0		
	2006	2,478	0	0.0	1	0	92	0		
	2007	2,471	0	0.0	3	0	81	0		
	2008	2,391	0	0.0	15	0	91	0		
	2009	2,643	0	0.0	0	0	52	0		
	2010	2,563	0	0.0	14	0	47	0		
	2011	2,420	0	0.0	1	0	32	0		
	2012	2,448	0	0.0	1	0	34	0		
	2013	2,457	0	0.0	2	0	34	0		
	2014	2,260	0	0.0	3	0	33	0		
	2015	2,238	0	0.0	7	0	36	0		

5.16 Results of groundwater quality survey(5)

Research- ed items Researched groups		General monitoring survey			Survey of contaminated wells and vicinities		Continuance surveillance or Regular monitoring survey		Remarks	
		Number of survey	Exceeding number	Exceeding rate (%)	Number of survey	Exceeding number	Number of survey	Exceeding rate	Standard type	Standard value
Thiobencarb	1997	2,381	0	0.0	16	0	598	0	Environmental standards	0.02mg/L or less
	1998	2,759	0	0.0	8	0	194	0		
	1999	2,476	0	0.0	2	0	186	0		
	2000	2,453	0	0.0	10	0	171	0		
	2001	2,575	0	0.0	2	0	201	0		
	2002	2,487	0	0.0	3	0	258	0		
	2003	2,573	0	0.0	2	0	233	0		
	2004	2,539	0	0.0	4	0	204	0		
	2005	2,319	0	0.0	4	0	222	0		
	2006	2,409	0	0.0	1	0	92	0		
	2007	2,399	0	0.0	0	0	81	0		
	2008	2,327	0	0.0	15	0	90	0		
	2009	2,583	0	0.0	0	0	52	0		
	2010	2,506	0	0.0	14	0	47	0		
	2011	2,419	0	0.0	1	0	32	0		
	2012	2,448	0	0.0	1	0	34	0		
	2013	2,456	0	0.0	2	0	34	0		
	2014	2,260	0	0.0	3	0	33	0		
	2015	2,238	0	0.0	7	0	36	0		
Benzene	1997	2,695	0	0.0	106	4	815	2	Environmental standards	0.01mg/L or less
	1998	3,536	0	0.0	178	4	451	2		
	1999	3,610	0	0.0	243	2	442	0		
	2000	3,436	0	0.0	211	1	425	1		
	2001	3,324	0	0.0	266	1	496	11		
	2002	3,563	1	0.0	136	1	544	6		
	2003	3,590	0	0.0	118	0	606	4		
	2004	3,524	0	0.0	107	0	604	3		
	2005	3,389	2	0.1	122	1	517	3		
	2006	3,485	0	0.0	96	0	466	3		
	2007	3,396	0	0.0	168	4	410	2		
	2008	3,238	0	0.0	156	0	431	5		
	2009	3,277	0	0.0	139	1	367	4		
	2010	3,106	0	0.0	177	0	353	3		
	2011	3,044	0	0.0	154	0	302	3		
	2012	2,999	0	0.0	158	0	324	3		
	2013	3,010	0	0.0	104	1	293	4		
	2014	2,751	1	0.0	193	0	320	4		
	2015	2,717	0	0.0	59	0	322	4		
Selenium	1997	2,229	0	0.0	46	1	595	1	Environmental standards	0.01mg/L or less
	1998	2,935	0	0.0	41	0	198	0		
	1999	2,758	0	0.0	27	0	192	0		
	2000	2,634	0	0.0	36	0	193	0		
	2001	2,600	0	0.0	24	0	203	0		
	2002	2,650	0	0.0	37	1	272	0		
	2003	2,919	0	0.0	24	0	276	0		
	2004	2,698	1	0.0	32	0	242	0		
	2005	2,599	1	0.0	48	0	218	0		
	2006	2,713	0	0.0	35	0	119	0		
	2007	2,830	0	0.0	46	0	157	0		
	2008	2,624	0	0.0	64	0	208	0		
	2009	2,965	0	0.0	21	0	81	0		
	2010	2,818	0	0.0	49	0	58	0		
	2011	2,738	0	0.0	23	0	47	0		
	2012	2,725	0	0.0	22	0	46	0		
	2013	2,720	0	0.0	24	0	46	0		
	2014	2,533	0	0.0	20	0	48	0		
	2015	2,482	0	0.0	31	0	47	0		
Nitrate nitrogen and nitrite nitrogen	1999	3,374	173	5.1	650	182	807	66	Environmental standards	10mg/L or less
	2000	4,167	253	6.1	1,682	479	988	165		
	2001	4,017	231	5.8	1,343	535	1,113	272		
	2002	4,207	247	5.9	1,199	296	1,324	423		
	2003	4,288	280	6.5	1,101	309	1,504	501		
	2004	4,260	235	5.5	928	283	1,750	637		
	2005	4,122	174	4.2	714	221	1,815	651		
	2006	4,193	179	4.3	789	266	1,732	715		
	2007	4,232	172	4.1	608	128	1,654	729		
	2008	3,830	167	4.4	461	96	1,945	757		
	2009	3,895	149	3.8	500	96	1,713	788		
	2010	3,361	144	4.3	691	160	1,723	813		
	2011	3,227	117	3.6	427	89	1,677	796		
	2012	3,240	117	3.6	401	94	1,625	769		
	2013	3,289	107	3.3	389	60	1,629	760		
	2014	3,084	90	2.9	266	42	1,661	733		
	2015	3,033	105	3.5	352	87	1,642	720		
Fluorine	1999	2,049	24	1.2	147	12	268	9	Environmental standards	0.8mg/L or less
	2000	3,276	25	0.8	658	112	417	19		
	2001	3,558	25	0.7	285	31	839	53		
	2002	4,117	16	0.4	207	31	446	80		
	2003	3,934	27	0.7	218	29	455	83		
	2004	3,542	19	0.5	142	18	441	89		
	2005	3,703	30	0.8	270	47	601	108		
	2006	3,817	32	0.8	190	41	536	103		
	2007	3,890	41	1.1	203	46	376	114		
	2008	3,537	23	0.7	185	10	582	148		
	2009	3,527	17	0.5	155	5	365	138		
	2010	3,088	20	0.6	253	20	380	156		
	2011	3,027	21	0.7	184	14	362	158		
	2012	2,964	18	0.6	142	5	391	151		
	2013	2,983	16	0.5	113	7	417	162		
	2014	2,783	26	0.9	120	12	422	167		
	2015	2,755	16	0.6	129	9	427	175		

5.16 Results of groundwater quality survey(6)

Research- ed items Researched groups		General monitoring survey			Survey of contaminated wells and vicinities		Continuance surveillance or Regular monitoring survey		Remarks	
		Number of survey	Exceeding number	Exceeding rate (%)	Number of survey	Exceeding number	Number of survey	Exceeding rate	Standard type	Standard value
Boron	1999	1,752	2	0.1	27	0	219	4	Environmental standards	1mg/L or less
	2000	3,210	16	0.5	231	4	314	5		
	2001	3,408	14	0.4	141	20	738	9		
	2002	3,989	5	0.1	217	12	287	15		
	2003	3,819	9	0.2	157	12	297	20		
	2004	3,499	8	0.2	92	1	291	26		
	2005	3,342	5	0.1	145	9	396	32		
	2006	3,396	8	0.2	59	4	301	39		
	2007	3,289	6	0.2	71	1	199	35		
	2008	3,149	9	0.3	62	2	220	39		
	2009	3,068	7	0.2	48	0	203	45		
	2010	2,956	9	0.3	176	11	176	44		
	2011	2,926	7	0.2	101	11	162	41		
	2012	2,868	3	0.1	68	3	176	43		
	2013	2,891	9	0.3	67	6	181	42		
	2014	2,676	7	0.3	50	5	174	43		
	2015	2,635	5	0.2	50	3	179	44		
Vinyl chloride monomer	2009	179	0	0.0	25	0	23	8	Environmental standards	0.002mg/L or less
	2010	2,311	4	0.2	282	5	852	48		
	2011	2,764	7	0.3	295	13	1,189	57		
	2012	2,716	1	0.0	273	14	1,365	83		
	2013	2,679	5	0.2	244	1	1,381	92		
	2014	2,495	2	0.1	357	8	1,374	94		
	2015	2,474	0	0.0	248	1	1,346	91		
1,2- dichloroethylene	2009	138	0	0.0	107	0	97	8	Environmental standards	0.04mg/L or less
	2010	2,935	0	0.0	325	3	1,833	160		
	2011	3,133	3	0.0	321	5	1,846	162		
	2012	3,097	2	0.1	427	13	1,826	154		
	2013	3,043	2	0.1	376	4	1,808	148		
	2014	2,831	0	0.0	388	7	1,758	143		
	2015	2,801	1	0.0	262	1	1,731	137		
1,4-dioxane	2009	226	0	0.0	22	0	0	0	Environmental standards	0.05mg/L or less
	2010	2,456	0	0.0	52	0	116	0		
	2011	2,731	1	0.0	61	1	83	1		
	2012	2,672	1	0.0	26	2	92	2		
	2013	2,701	0	0.0	31	0	102	3		
	2014	2,519	0	0.0	149	2	143	4		
	2015	2,483	2	0.1	53	2	133	4		

Notes

• The exceeding number is the number of wells exceeding the standard measure at the time, and exceeding rate is the ratio of excess following a number of surveys.

The environmental Standards for Water Pollution of groundwater was set in fiscal year 1997, and the standards before 1997 had been evaluation standards or provisional guidelines.

• Environmental standards related to ground water contamination were set in FY 1997. All other standards prior to FY 1997 were considered to be evaluation standards or tentative guidelines.

• Nitrate nitrogen and nitrite nitrogen, fluorine, boron were added to the environmental standards in 1999.

• Starting in FY 2009, Continuance surveillance was changed to Regular monitoring survey in the survey group.

• Nitrate nitrogen and nitrite nitrogen, fluorine, boron were added to the environmental standards in 1999.

Source: "FY 2015 Quality Survey of Underground Water," Ministry of the Environment

5.17 Changes in number of confirmed marine pollution cases by sea area

(Unit: Case)

		(Unit: Case)											
		Sea area	Coast of Hokkaido	Eastern coast of Honshu	Tokyo Bay	Ise Bay	Osaka Bay	Seto inland sea (excluding Osaka Bay)	Southern coast of Honshu	Coastal Kyushu	Japan sea coast	Southwestern sea	Total
Year	Type												
2009	Non-oil	Oil	66	47	59	19	4	60	30	48	23	13	369
		Hazardous liquid substance	0	0	0	0	0	2	1	0	0	0	3
		Waste	26	16	2	23	3	2	9	7	15	1	104
		Others	8	1	2	0	0	4	0	9	0	0	24
		Subtotal	34	17	4	23	2	8	10	16	15	1	131
		Red tide	0	0	6	4	0	1	0	1	2	0	14
Total		100	64	69	46	7	69	40	65	40	14	514	
2010	Non-oil	Oil	39	46	32	10	10	66	23	24	30	20	300
		Hazardous liquid substance	0	0	0	1	0	4	0	0	1	0	6
		Waste	36	27	0	33	1	4	6	5	12	2	126
		Others	3	3	3	4	0	6	2	2	10	0	33
		Subtotal	39	30	6	38	1	14	8	7	23	2	168
		Red tide	0	0	6	2	0	0	1	3	0	0	12
Total		78	76	41	50	11	80	32	34	53	22	477	
2011	Non-oil	Oil	17	23	37	12	16	56	22	25	27	21	256
		Hazardous liquid substance	0	0	0	2	0	0	0	0	0	1	3
		Waste	22	0	0	21	0	11	8	9	17	3	91
		Others	3	1	1	0	1	4	0	3	12	0	25
		Subtotal	25	1	1	23	1	15	8	12	29	4	119
		Red tide	0	2	5	1	0	1	2	4	1	0	16
Total		42	26	43	36	17	72	32	41	57	25	391	
2012	Non-oil	Oil	12	27	34	18	14	38	18	34	27	22	244
		Hazardous liquid substance	0	2	1	3	2	3	0	0	0	0	11
		Waste	29	16	0	23	2	6	4	3	32	1	116
		Others	3	2	0	3	0	1	0	0	2	0	11
		Subtotal	32	20	1	29	4	10	4	3	34	1	138
		Red tide	0	0	3	6	0	5	2	0	2	0	18
Total		44	47	38	53	18	53	24	37	63	23	400	
2013	Non-oil	Oil	11	30	31	23	16	46	25	30	27	18	257
		Hazardous liquid substance	0	0	1	0	1	0	0	0	1	0	3
		Waste	35	58	1	39	3	6	1	3	41	0	187
		Others	1	3	1	1	0	0	1	1	0	0	8
		Subtotal	36	61	3	40	4	6	2	4	42	0	198
		Total	47	91	34	63	20	52	27	34	69	18	455
2014	Non-oil	Oil	18	24	13	25	18	46	19	35	30	7	235
		Hazardous liquid substance	0	0	0	0	0	1	1	0	1	0	3
		Waste	29	11	1	28	0	9	8	10	30	2	128
		Others	1	2	1	2	0	2	0	2	4	0	14
		Subtotal	30	13	2	30	0	12	9	12	35	2	145
		Total	48	37	15	55	18	58	28	47	65	9	380
2015	Non-oil	Oil	11	17	21	10	19	56	38	26	40	9	247
		Hazardous liquid substance	0	0	0	1	1	3	2	1	0	1	9
		Waste	35	27	1	18	1	13	3	1	13	0	112
		Others	0	1	3	2	0	3	0	7	8	0	24
		Subtotal	35	28	4	21	2	19	5	9	21	1	145
		Total	46	45	25	31	21	75	43	35	61	10	392
2016	Non-oil	Oil	26	47	25	11	19	57	32	43	22	11	293
		Hazardous liquid substance	0	1	3	0	0	2	14	0	1	0	21
		Waste	32	22	0	21	0	12	4	3	17	0	111
		Others	1	2	0	1	0	3	3	1	1	0	12
		Subtotal	33	25	3	22	0	17	21	4	19	0	144
		Total	59	72	28	33	19	74	53	47	41	11	437

Notes:

- "Others" in the "Non-oil" column refer to factory effluent, blue tide and the like.

- Confirmed cases of "Oil" in the "Eastern coast of Honshu" includes the continuous oil spill of 23 cases from "the Chilsong" which was stranded at Hitachi Harbor.

Source: Compiled from "Current situations of Oceanic pollution: January ~ December 2016" by Japan Coast Guard

5.18 Changes in number of cases of referral by violations against marine environmental laws

Name of Act	Group	Violation	Number detained				
			2012	2013	2014	2015	2016
Prevention of Marine Pollution and Maritime Disaster Act		Violation against prohibiting discharge of oil/hazardous liquids/waste from ships	151	161	142	107	145
		Violation against prohibiting the disposal of disabled ship	118	134	113	109	97
		Other violations	101	141	136	100	130
Waste Management and Public Cleansing Act			135	156	148	192	199
Water Pollution Control Act			5	2	7	13	6
Port Regulations Act			37	57	56	39	41
Other laws			15	10	4	9	6
Total			562	661	606	569	624

Source: Report about crackdown on maritime crime (2016)

5.20 Changes in population using flush toilets and treatment volume of night soil (1)

1. Population by treatment type

(Unit : 1,000 people)

Group		FY 2002	2003	2004	2005	2006	2007
Total population		127,299	127,507	127,606	127,712	127,781	127,487
Population with flush toilet	Population with public sewage	76,004	78,174	80,061	81,880	83,742	84,982
	Population with community plant	418	362	383	552	361	336
	Population with septic tanks	33,053	32,516	31,947	31,095	30,473	29,863
	Stand-alone	21,038	20,035	19,163	18,303	17,187	15,924
	Combined	12,015	12,481	12,784	12,792	13,286	13,939
	Total	109,475	111,052	112,390	113,526	114,576	115,181
Population without flush toilet	Population covered with scheduled collection	17,348	16,049	14,877	13,920	12,983	12,121
	Self-disposal	476	405	339	266	222	185
	Total	17,824	16,455	15,215	14,186	13,205	12,306
Rate with flush toilets	(%)	86.0	87.1	88.1	88.9	89.7	90.3
Rate without flushing toilet	(%)	14.0	12.9	11.9	11.1	10.3	9.7
Rate with flush toilets using public sewage	(%)	59.7	61.3	62.7	64.1	65.5	66.7
Rate with flush toilets using septic tanks	(%)	26.3	25.8	25.3	24.8	24.1	23.7
	Combined treatment	(%)	9.6	10.1	10.3	10.7	11.2

Notes:

"Combined" of population septic tanks is the sum of population of combined septic tanks and population of including community plant.

Population of septic tanks is included population using an agricultural community effluent treatment facility.

2. Current night soil treatment

Group		FY2002	2003	2004	2005	2006	2007
Number of treatment	Night soil treatment facilities	26,406 (89.6)	26,187 (90.8)	25,013 (91.2)	24,191 (91.1)	23,953 (91.1)	23,248 (93.1)
	Amount of night soil collected	12,720	12,390	11,269	10,400	9,864	9,261
	Amount of septic tanks sludge	13,686	13,797	13,744	13,790	14,089	13,987
	Composting facilities	—	—	—	4 (0.0)	7 (0.0)	11 (0.0)
	Amount of night soil collected	—	—	—	3	3	4
	Amount of septic tanks sludge	—	—	—	1	3	6
	Methane composting facilities	—	—	—	1 (0.0)	7 (0.0)	15 (0.1)
	Amount of night soil collected	—	—	—	0	1	5
	Amount of septic tanks sludge	—	—	—	1	6	10
	Outflow to sewage	1,513 (5.1)	1,377 (4.8)	1,293 (4.7)	1,385 (5.2)	1,442 (5.5)	1,476 (5.9)
	Amount of night soil collected	753	642	575	608	649	581
	Amount of septic tanks sludge	759	734	718	777	793	894
	Farmland reduction	61 (0.2)	60 (0.2)	59 (0.2)	51 (0.2)	48 (0.2)	41 (0.2)
	Amount of night soil collected	33	34	33	28	25	16
	Amount of septic tanks sludge	28	27	26	23	23	26
	Sea dumping	1,082 (3.7)	842 (2.9)	748 (2.7)	623 (2.3)	393 (1.5)	—
	Amount of night soil collected	390	255	234	192	121	—
	Amount of septic tanks sludge	692	587	514	431	272	—
	Others	61 (0.2)	65 (0.2)	53 (0.2)	109 (0.4)	110 (0.4)	54 (0.2)
	Amount of night soil collected	34	28	19	30	34	20
	Amount of septic tanks sludge	27	37	34	79	76	35
	Subtotal	29,123 (98.8)	28,531 (99.0)	27,165 (99.1)	26,364 (99.3)	25,960 (99.4)	24,845 (99.5)
	Amount of night soil collected	13,929	13,349	12,130	11,262	10,698	9,887
	Amount of septic tanks sludge	15,193	15,182	15,035	15,102	15,262	14,959
	Self disposal volume	340 (1.2)	296 (1.0)	257 (0.9)	197 (0.7)	144 (0.6)	129 (0.5)
	Amount of night soil collected	316	280	243	170	138	123
	Amount of septic tanks sludge	23	16	14	27	7	6
	Total	29,462 (100.0)	28,827 (100.0)	27,422 (100.0)	26,561 (100.0)	26,105 (100.0)	24,974 (100.0)
	Amount of night soil collected	14,246	13,629	12,374	11,432	10,836	10,010
	Quantity of septic tanks sludge	15,216	15,198	15,049	15,128	15,269	14,964
Designed treatment volume of urine per person per day (l / person · day)		2.20	2.27	2.23	2.22	2.26	2.23
Discharged night soil per person per day (l / person · day)		2.19	2.26	2.23	2.21	2.25	2.22
Designed treatment volume of septic tanks sludge per person per day (l / person · day)		1.24	1.26	1.27	1.31	1.36	1.35
Discharge of sludge from septic tanks per day (l / person · day)		1.25	1.26	1.28	1.31	1.36	1.35

Notes:

"Night soil treatment facilities": Facility to treat excreta by anaerobic digestion process, chemical processing, aerobic treatment, wet oxidation system etc.

"Sewage input": Outflow or pressurized transportation to a sewage system with terminal treatment plants.

"Farmland reduction": To use collected night soil or septic tanks sludge as fertilizer for farmland.

"Sea dumping": To dump collected night soil or septic tanks sludge into the sea.

Data in parenthesis are the rate of percentage to total.

5.20 Changes in population using flush toilets and treatment volume of night soil (2)

1. Population by treatment type		(Unit : 1,000 people)						
Group		FY2008	2009	2010	2011	2012	2013	2014
Total population		127,529	127,429	127,302	127,146	128,622	128,394	128,181
Population with flush toilet	Population with public sewage	86,027	87,819	88,865	89,810	91,984	92,886	93,685
	Population with community plant	416	297	293	286	289	304	302
	Population with septic tanks	29,267	28,504	28,030	27,591	27,392	26,875	26,386
	Stand-alone	15,413	14,712	13,948	13,316	13,052	12,383	11,822
	Combined	13,854	13,792	14,082	14,276	14,341	14,492	14,564
Total		115,710	116,620	117,188	117,687	119,666	120,065	120,372
Population without flush toilet	Population covered with scheduled collection	11,301	10,671	9,984	9,348	8,849	8,242	7,727
	Self-disposal	518	139	130	112	107	87	83
	Total	11,819	10,810	10,114	9,460	8,956	8,329	7,810
Rate with flush		(%) 90.7	91.5	92.1	92.6	93.0	93.5	93.9
Rate without flushing toilet		(%) 9.3	8.5	7.9	7.4	7.0	6.5	6.1
Rate with flush toilets using public sewage		(%) 67.5	68.9	69.8	70.6	71.5	72.3	73.1
Rate with flush toilets using septic tanks		(%) 22.9	22.4	22.0	21.7	21.3	20.9	20.6
Combined treatment		(%) 11.2	11.1	11.3	11.2	11.1	11.3	11.4

2. Conditions of current urine treatment

2. Conditions of current urine treatment		FY2008	2009	2010	2011	2012	2013	2014	
Number of total treatment	Number of designed treatment	Night soil treatment facilities	22,958 (93.5)	22,343 (93.6)	21,678 (93.1)	20,912 (91.6)	20,538 (92.1)	20,497 (92.3)	19,937 (92.3)
		Amount of night soil collected	8,894	8,353	7,917	7,365	7,018	6,771	6,375
		Amount of septic tanks sludge	14,064	13,989	13,760	13,547	13,519	13,726	13,562
		Composting facilities	28 (0.1)	58 (0.2)	17 (0.1)	15 (0.1)	21 (0.1)	19 (0.1)	25 (0.1)
		Amount of night soil collected	3	16	4	3	3	2	4
		Amount of septic tanks sludge	25	42	13	13	17	16	21
		Methane composting facilities	16 (0.1)	27 (0.1)	16 (0.1)	16 (0.1)	15 (0.1)	21 (0.1)	20 (0.1)
		Amount of night soil collected	5	5	4	4	4	6	8
		Amount of septic tanks sludge	11	23	12	12	11	15	11
		Outflow to sewage	1,347 (5.5)	1,265 (5.3)	1,346 (5.8)	1,654 (7.2)	1,544 (6.9)	1,265 (5.8)	1,455 (6.7)
		Amount of night soil collected	519	455	462	587	502	434	465
		Amount of septic tanks sludge	828	810	884	1,068	1,042	831	991
		Farmland reduction	39 (0.2)	33 (0.1)	72 (0.3)	69 (0.3)	23 (0.1)	18 (0.1)	21 (0.1)
		Amount of night soil collected	17	9	13	9	9	7	8
		Amount of septic tanks sludge	22	23	59	60	14	11	13
		Sea dumping	-	-	-	-	-	-	-
		Amount of night soil collected	-	-	-	-	-	-	-
		Amount of septic tanks sludge	-	-	-	-	-	-	-
		Others	54 (0.2)	47 (0.2)	69 (0.3)	61 (0.3)	71 (0.3)	39 (0.2)	33 (0.2)
		Amount of night soil collected	18	16	16	17	14	7	5
		Amount of septic tanks sludge	36	30	53	44	56	32	28
		Subtotal	24,442 (99.5)	23,772 (99.6)	23,198 (99.6)	22,728 (99.6)	22,211 (99.6)	21,859 (99.7)	21,490 (99.5)
		Amount of night soil collected	9,455	8,855	8,417	7,984	7,551	7,228	6,864
		Amount of septic tanks sludge	14,987	14,917	14,781	14,744	14,660	14,631	14,625
		Self-disposal volume	111 (0.5)	102 (0.4)	83 (0.4)	99 (0.4)	78 (0.4)	76 (0.3)	108 (0.5)
		Amount of night soil collected	104	91	76	93	62	61	70
		Amount of septic tanks sludge	6	11	7	6	16	15	38
Total	24,553 (100.0)	23,874 (100.0)	23,280 (100.0)	22,827 (100.0)	22,289 (100.0)	21,935 (100.0)	21,598 (100.0)		
Amount of night soil collected	9,560	8,946	8,493	8,077	7,613	7,289	6,934		
Amount of septic tanks sludge	14,993	14,928	14,788	14,750	14,676	14,646	14,663		
Designed treatment volume of urine per person per day (l / person · day)		2.29	2.27	2.31	2.33	2.34	2.40	2.43	
Discharged night soil per person per day (l / person · day)		2.32	2.30	2.30	2.33	2.33	2.40	2.43	
Designed treatment volume of septic tanks sludge per person per day (l / person · day)		1.38	1.42	1.43	1.45	1.45	1.47	1.50	
Discharge of sludge from septic tanks per day (l / person · day)		1.38	1.42	1.43	1.45	1.45	1.48	1.51	

Source: "Waste Treatment in Japan (annual version)," Ministry of the Environment

5.21 Current situations of night soil treatment facilities by prefectures (1)

(FY2014)

	Total Population (Thousand person)	Population using flush toilet (Thousand person)							The population not using flush toilet				
		Public sewage System		Community Plants	Septic tank		Total	The usage rate of flush toilet(%)		Population on designed disposal program	Population covered with designed disposal program (%)	Population under self-disposal process	
			Use rate of flush toilet(%)			Use rate of flush toilet(%)							Combined Septic Tanks
Hokkaido	5,432	4,769	87.8	0	267	4.9	184	5,036	92.7	396	393	7.3	3
Aomori	1,356	697	51.4	0	469	34.6	210	1,166	86.0	189	189	14.0	0
Iwate	1,303	638	48.9	2	282	21.6	238	921	70.7	382	381	29.3	1
Miyagi	2,328	1,727	74.2	6	283	12.1	186	2,016	86.6	312	308	13.4	5
Akita	1,058	537	50.8	0	265	25.1	198	802	75.8	256	256	24.2	0
Yamagata	1,140	757	66.4	0	278	24.4	203	1,035	90.8	105	105	9.2	0
Fukushima	1,951	897	46.0	6	828	42.4	492	1,731	88.8	220	220	11.3	0
Ibaraki	2,974	1,620	54.5	11	1,090	36.6	574	2,721	91.5	254	253	8.5	0
Tochigi	2,006	1,197	59.7	1	685	34.1	379	1,883	93.8	124	124	6.2	0
Gunma	2,014	940	46.7	24	932	46.3	438	1,896	94.2	118	118	5.8	0
Saitama	7,303	5,545	75.9	9	1,624	22.2	826	7,178	98.3	125	124	1.7	0
Chiba	6,253	4,250	68.0	9	1,805	28.9	895	6,063	97.0	190	190	3.0	1
Tokyo	13,287	13,168	99.1	2	91	0.7	38	13,262	99.8	25	25	0.2	0
Kanagawa	9,117	8,662	95.0	0	419	4.6	136	9,081	99.6	36	36	0.4	0
Niigata	2,339	1,488	63.6	0	692	29.6	281	2,179	93.2	160	160	6.8	0
Toyama	1,086	839	77.2	4	200	18.4	106	1,043	96.0	43	43	4.0	0
Ishikawa	1,160	856	73.8	3	258	22.3	124	1,118	96.3	42	42	3.7	0
Fukui	804	561	69.7	0	207	25.7	108	768	95.4	37	35	4.6	2
Yamanashi	856	493	57.6	6	305	35.7	122	805	94.1	51	51	5.9	0
Nagano	2,149	1,638	76.2	5	306	14.2	196	1,949	90.7	201	200	9.3	0
Gifu	2,046	1,300	63.5	22	622	30.4	334	1,943	95.0	103	102	5.0	0
Shizuoka	3,789	2,114	55.8	15	1,561	41.2	641	3,690	97.4	100	98	2.6	2
Aichi	7,487	5,320	71.1	11	1,996	26.7	1,016	7,327	97.9	160	160	2.1	0
Mie	1,828	836	45.7	7	845	46.2	565	1,688	92.3	140	140	7.7	0
Shiga	1,421	1,172	82.5	0	191	13.4	136	1,363	95.9	58	57	4.1	1
Kyoto	2,629	2,339	89.0	10	155	5.9	94	2,504	95.3	125	123	4.7	2
Osaka	8,871	8,162	92.0	0	522	5.9	239	8,685	97.9	186	186	2.1	0
Hyogo	5,635	5,104	90.6	66	344	6.1	192	5,514	97.9	121	120	2.1	1
Nara	1,396	982	70.3	4	331	23.7	146	1,318	94.4	79	78	5.6	0
Wakayama	1,005	198	19.7	1	599	59.6	327	797	79.4	207	207	20.6	1
Tottori	584	355	60.8	0	175	29.9	70	530	90.8	54	52	9.2	1
Shimane	707	282	39.9	4	277	39.3	202	564	79.8	143	140	20.2	3
Okayama	1,940	1,103	56.8	0	587	30.3	368	1,690	87.1	250	238	12.9	12
Hiroshima	2,870	1,939	67.5	14	598	20.8	392	2,551	88.9	320	307	11.1	13
Yamaguchi	1,433	858	59.9	0	437	30.5	289	1,296	90.4	137	130	9.6	7
Tokushima	778	117	15.1	7	590	75.9	286	715	91.9	63	57	8.1	6
Kagawa	1,006	400	39.7	1	495	49.1	275	895	88.9	112	111	11.1	1
Ehime	1,428	701	49.1	6	568	39.8	304	1,275	89.2	154	152	10.8	1
Kochi	748	223	29.8	8	364	48.7	259	594	79.5	153	151	20.5	2
Fukuoka	5,117	3,906	76.3	13	650	12.7	512	4,569	89.3	548	547	10.7	1
Saga	848	415	49.0	1	222	26.2	187	638	75.3	210	209	24.7	1
Nagasaki	1,415	784	55.4	12	266	18.8	176	1,062	75.0	353	352	25.0	1
Kumamoto	1,819	1,114	61.3	1	477	26.3	279	1,592	87.5	227	224	12.5	3
Oita	1,191	491	41.2	1	559	46.9	291	1,051	88.2	140	130	11.8	10
Miyazaki	1,136	582	51.2	0	434	38.2	292	1,016	89.4	120	120	10.6	0
Kagoshima	1,687	664	39.4	9	808	47.9	547	1,481	87.8	206	206	12.2	0
Okinawa	1,449	945	65.2	0	427	29.4	208	1,372	94.7	78	77	5.3	0
Total	128,181	93,685	73.1	302	26,386	20.6	14,563	120,372	93.9	7,810	7,727	6.1	83

5.21 Current situations of night soil treatment facilities by prefectures (2)

(FY2014)

	Total throughput of resulting products (Thousand KL/Year)									
	Throughput of designed disposal program								Throughput of self-disposal process	Total
	Night soil treatment facilities	Waste Composting Facilities	Methane Composting Facilities	Outflow to sewage	Farmland Reduction	Sea Dumping	Others	Sub Total		
Hokkaido	532	5	9	108	1	-	0	654	4	658
Aomori	435	0	0	0	0	-	0	436	0	436
Iwate	557	0	0	0	0	-	0	557	1	558
Miyagi	445	0	0	0	0	-	0	445	5	450
Akita	422	0	0	0	0	-	0	422	44	466
Yamagata	218	0	0	0	0	-	0	218	0	218
Fukushima	555	0	0	44	0	-	0	599	0	599
Ibaraki	651	0	0	10	0	-	0	662	0	662
Tochigi	329	0	0	0	0	-	0	329	0	329
Gunma	471	7	0	0	0	-	8	486	0	486
Saitama	809	0	0	0	0	-	0	809	0	810
Chiba	796	0	0	11	0	-	0	808	1	808
Tokyo	80	0	0	14	0	-	3	97	0	97
Kanagawa	172	0	0	171	0	-	0	343	1	344
Niigata	395	0	0	100	0	-	0	495	0	496
Toyama	95	0	0	33	0	-	0	128	0	128
Ishikawa	126	0	0	0	0	-	0	126	0	126
Fukui	134	0	0	16	0	-	0	150	1	151
Yamanashi	134	2	0	0	0	-	0	137	0	137
Nagano	310	0	0	27	0	-	0	337	0	337
Gifu	587	0	0	8	0	-	0	595	0	595
Shizuoka	925	0	0	35	0	-	5	965	1	966
Aichi	1,062	0	0	139	0	-	0	1,201	0	1,201
Mie	625	0	0	9	0	-	0	634	0	634
Shiga	165	1	0	25	0	-	0	192	1	193
Kyoto	216	0	0	23	0	-	0	239	2	241
Osaka	457	0	0	118	0	-	0	575	1	576
Hyogo	253	0	0	83	0	-	0	336	1	337
Nara	229	0	0	1	0	-	7	238	0	238
Wakayama	514	0	0	0	0	-	0	514	0	515
Tottori	120	0	0	0	0	-	0	120	1	120
Shimane	282	0	0	1	0	-	0	283	2	284
Okayama	598	0	0	27	0	-	0	625	5	630
Hiroshima	576	0	0	79	0	-	0	655	8	663
Yamaguchi	396	1	0	40	0	-	1	437	5	442
Tokushima	276	0	0	0	0	-	0	276	3	280
Kagawa	179	0	0	1	0	-	0	180	0	180
Ehime	404	0	0	2	0	-	1	407	1	409
Kochi	362	1	0	0	0	-	0	364	1	365
Fukuoka	1,071	0	11	132	0	-	0	1,214	1	1,215
Saga	404	3	0	0	0	-	0	408	1	409
Nagasaki	615	0	0	3	0	-	0	618	1	620
Kumamoto	405	3	0	158	0	-	0	566	1	567
Oita	413	2	0	0	0	-	0	415	7	422
Miyazaki	326	1	0	11	0	-	0	338	0	338
Kagoshima	700	0	0	1	15	-	0	716	0	716
Okinawa	108	0	0	25	4	-	7	144	6	150
Total	19,937	25	20	1,455	21	-	33	21,490	108	21,598

Source: "Waste & Recycling (FY2014)," Ministry of the Environment

5.22 Trends in breakdown of nationwide night soil treatment facilities by type (start-of-construction-basis)

(Unit: KL/Day)

	Anaerobic treatment		Aerobic treatment		Standard Denitrification treatment		High-loading denitrification treatment		Membrane Bioreactor treatment		Others		Total	
	Number of facilities	Processing capacity	Number of facilities	Processing capacity	Number of facilities	Processing capacity	Number of facilities	Processing capacity	Number of facilities	Processing capacity	Number of facilities	Processing capacity	Number of facilities	Processing capacity
FY1990	385	34,580	703	60,008	-	-	-	-	-	-	124	13,777	1,212	108,365
1991	355	30,681	346	33,353	245	26,048	138	9,672	-	-	175	18,053	1,259	117,807
1992	304	26,312	289	22,745	247	25,995	139	10,681	11	509	195	23,068	1,185	109,310
1993	289	24,021	300	22,306	260	27,816	139	10,674	14	653	191	21,558	1,193	107,028
1994	270	22,901	286	21,261	279	30,149	157	12,310	21	994	200	21,080	1,213	108,695
1995	234	19,869	265	19,716	281	30,157	175	13,817	28	1,616	200	20,028	1,183	105,203
1996	210	17,510	246	17,951	286	30,751	187	15,312	29	1,645	210	21,474	1,168	104,643
1997	183	15,585	240	17,215	294	31,251	202	17,525	35	2,042	207	21,422	1,161	105,039
1998	167	14,068	217	14,781	302	31,850	192	16,235	36	2,036	236	24,795	1,150	103,764
1999	142	12,277	194	12,730	300	31,815	195	16,331	40	2,314	245	25,159	1,116	100,625
2000	130	10,996	191	12,166	300	31,908	198	16,498	41	2,375	259	25,917	1,119	99,860
2001	121	9,892	181	11,070	307	32,245	195	16,177	41	2,597	279	27,551	1,124	99,532
2002	101	8,518	169	10,411	306	32,230	196	16,735	40	2,759	299	27,566	1,111	98,219
2003	96	8,090	160	10,005	307	32,375	197	17,177	38	4,401	303	28,716	1,101	100,764
2004	86	7,032	152	9,369	307	31,628	199	16,973	37	4,350	320	29,707	1,101	99,329
2005	76	6,476	136	8,465	288	29,655	203	17,493	38	3,055	317	30,277	1,058	95,420
2006	66	5,856	127	8,005	272	28,363	189	15,980	31	4,264	366	34,733	1,051	97,200
2007	59	4,801	126	7,892	273	28,102	186	15,784	27	3,861	370	33,115	1,041	93,555
2008	56	4,444	118	7,535	268	27,737	182	14,938	26	3,650	389	35,441	1,039	93,745
2009	52	4,144	108	6,961	269	27,748	189	16,285	24	3,573	389	34,654	1,031	93,364
2010	50	3,891	105	6,753	257	26,173	186	16,104	27	3,684	393	34,577	1,018	91,182
2011	44	3,265	94	6,200	251	25,694	184	15,778	27	3,684	400	34,622	1,000	89,243
2012	43	3,159	96	6,469	248	25,608	179	15,030	32	4,062	391	33,556	989	87,884
2013	43	3,059	90	6,001	244	25,153	175	14,529	31	4,074	399	33,975	982	86,791
2014	38	2,779	87	5,899	236	24,663	172	14,336	29	2,204	406	34,983	968	84,864

Notes:

- Facilities established by municipalities and administration associations include idle facilities and facilities started construction in the fiscal year, but not abolished facilities.
- "Standard Denitrification treatment" and "Standard Denitrification treatment" were included in Aerobic treatment prior to survey 1990.
- Membrane Bioreactor treatment is included in others prior to survey 1991.

Source: "Waste & Recycling (Yearly report)," Ministry of the Environment

5.23 Changes in number of installed Johkasou※ (Nationwide)

(Unit: Plant)

		FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Plant for ~ 20 people		7,659,463 (5,941,469)	7,676,160 (6,021,016)	7,688,392 (6,097,153)	7,534,990 (6,066,922)	7,480,780 (6,083,458)	7,340,054 (6,098,795)
21~ 100		818,145 (527,228)	808,594 (526,998)	793,545 (524,396)	747,142 (510,199)	730,606 (506,074)	691,535 (495,735)
101~ 500		134,724 (83,313)	130,645 (81,235)	127,481 (80,977)	121,025 (79,123)	117,473 (78,958)	111,631 (77,733)
Sub Total		8,612,332 (6,552,010)	8,615,399 (6,629,249)	8,609,418 (6,702,526)	8,403,157 (6,656,244)	8,328,859 (6,668,490)	8,143,220 (6,672,263)
501~ 1,000		8,633 (6,354)	8,369 (6,136)	8,298 (6,153)	7,971 (5,996)	7,930 (6,108)	7,715 (6,076)
1,001~ 2,000		4,477 (3,447)	4,463 (3,452)	4,441 (3,458)	4,439 (3,499)	4,372 (3,499)	4,280 (3,484)
2,001~ 3,000		1,383 (1,077)	1,376 (1,077)	1,384 (1,094)	1,358 (1,082)	1,396 (1,112)	1,328 (1,085)
3,001~ 4,000		399 (312)	407 (319)	412 (316)	417 (329)	411 (326)	401 (317)
4,001~ 5,000		245 (201)	230 (194)	221 (186)	221 (186)	215 (182)	212 (182)
5,001~		335 (217)	327 (221)	321 (222)	321 (223)	312 (222)	315 (228)
Sub Total		15,472 (11,608)	15,172 (11,399)	15,077 (11,429)	14,727 (11,315)	14,636 (11,449)	14,251 (11,372)
Total		8,627,804 (6,563,618)	8,630,571 (6,640,648)	8,624,495 (6,713,955)	8,417,884 (6,667,559)	8,343,495 (6,679,939)	8,157,471 (6,683,635)
Break -down	Black water only type	6,299,840 (4,258,880)	6,131,836 (4,166,189)	5,965,513 (4,081,040)	5,641,662 (3,916,080)	5,442,181 (3,803,133)	5,170,659 (3,723,893)
	Both black + grey water type	2,327,964 (2,304,738)	2,498,735 (2,474,459)	2,658,982 (2,632,915)	2,776,222 (2,751,479)	2,901,314 (2,876,806)	2,986,812 (2,959,742)

		FY2010	FY2011	FY2012	FY2013	FY2014	FY2015
Plant for ~ 20 people		7,162,437 (6,025,052)	7,066,207 (6,004,392)	7,028,375 (6,014,594)	6,984,374 (6,036,702)	6,948,435 (6,047,384)	6,931,803 (6,054,789)
21~ 100		657,270 (480,207)	637,111 (473,461)	620,588 (465,127)	608,635 (462,011)	596,578 (455,869)	589,028 (451,366)
101~ 500		106,452 (75,982)	101,361 (73,629)	97,088 (71,416)	96,312 (71,116)	93,789 (70,070)	90,750 (68,212)
Sub Total		7,926,159 (6,581,241)	7,804,679 (6,551,482)	7,746,051 (6,551,137)	7,689,321 (6,569,829)	7,638,802 (6,573,323)	7,611,581 (6,574,367)
501~ 1,000		7,517 (5,988)	7,155 (5,776)	6,870 (5,615)	6,790 (5,545)	6,655 (5,512)	6,508 (5,429)
1,001~ 2,000		4,212 (3,465)	4,053 (3,374)	3,943 (3,313)	3,910 (3,297)	3,877 (3,312)	3,775 (3,266)
2,001~ 3,000		1,326 (1,092)	1,300 (1,084)	1,263 (1,066)	1,250 (1,057)	1,244 (1,079)	1,225 (1,068)
3,001~ 4,000		388 (311)	375 (301)	374 (305)	372 (305)	363 (302)	356 (296)
4,001~ 5,000		217 (186)	205 (175)	199 (171)	203 (177)	200 (175)	195 (173)
5,001~		296 (223)	291 (219)	286 (215)	293 (222)	282 (220)	275 (218)
Sub Total		13,956 (11,265)	13,379 (10,929)	12,935 (10,685)	12,818 (10,603)	12,621 (10,600)	12,334 (10,450)
Total		7,940,115 (6,592,506)	7,818,058 (6,562,411)	7,758,986 (6,561,822)	7,702,139 (6,580,432)	7,651,423 (6,583,923)	7,623,915 (6,584,817)
Break -down	Black water only type	4,883,467 (3,559,629)	4,674,779 (3,441,912)	4,531,552 (3,356,153)	4,368,516 (3,266,792)	4,233,122 (3,184,853)	4,124,453 (3,103,889)
	Both black + grey water type	3,056,648 (3,032,877)	3,143,279 (3,120,499)	3,227,434 (3,205,669)	3,333,623 (3,313,640)	3,418,301 (3,399,070)	3,499,462 (3,480,928)

Note:

※Packaged Aerated Wastewater Treatment Plant

・Parenthesized figures in lower rows refer to the number of tanks subjected to new standard structures.

Source: "Governance survey on Johkasou," Ministry of the Environment

5.24 Night soil treatment facilities (established by municipalities and administration associations) by prefecture

(FY2014)

	Anaerobic treatment		Aerobic treatment		Standard Denitrification treatment		High-loading denitrification treatment		Membrane Bioreactor treatment		Others		Total	
	Number of facilities	Processing capacity (kl/Day)	Number of facilities	Processing capacity (kl/Day)	Number of facilities	Processing capacity (kl/Day)	Number of facilities	Processing capacity (kl/Day)	Number of facilities	Processing capacity (kl/Day)	Number of facilities	Processing capacity (kl/Day)	Number of facilities	Processing capacity (kl/Day)
Hokkaido	15	1,046	7	475	1	60	6	167	1	43	31	1,795	61	3,587
Aomori	0	0	0	0	6	872	4	200	0	0	3	562	13	1,634
Iwate	1	105	1	80	4	463	5	672	0	0	5	636	16	1,956
Miyagi	0	0	0	0	5	537	5	536	0	0	6	705	16	1,778
Akita	0	0	1	120	4	572	6	483	0	0	5	467	16	1,642
Yamagata	0	0	0	0	4	592	1	180	0	0	5	347	10	1,119
Fukushima	3	440	3	316	7	535	3	252	0	0	6	563	22	2,106
Ibaraki	1	50	5	384	7	912	9	753	1	39	12	727	35	2,865
Tochigi	0	0	0	0	7	980	6	452	0	0	1	191	14	1,623
Gunma	0	0	5	253	2	174	11	775	1	46	6	573	25	1,821
Saitama	0	0	1	100	14	1,732	4	428	1	80	17	1,523	37	3,863
Chiba	1	200	1	110	9	899	8	935	4	451	11	1,340	34	3,935
Tokyo	0	0	1	23	1	140	1	4	2	281	7	177	12	625
Kanagawa	1	47	1	50	3	309	1	37	0	0	6	630	12	1,073
Niigata	0	0	1	20	7	505	0	0	0	0	14	1,250	22	1,775
Toyama	0	0	1	66	0	0	1	45	0	0	4	420	6	531
Ishikawa	2	155	1	120	3	263	1	80	0	0	6	459	13	1,077
Fukui	0	0	0	0	1	50	4	211	0	0	8	433	13	694
Yamanashi	2	90	3	204	5	230	1	85	1	40	2	151	14	800
Nagano	0	0	1	200	8	1,154	6	599	0	0	10	524	25	2,477
Gifu	1	60	2	106	8	606	6	287	1	35	10	995	28	2,089
Shizuoka	1	36	6	201	10	981	3	301	2	272	15	1,981	37	3,772
Aichi	1	60	5	600	7	1,187	5	527	0	0	13	1,918	31	4,292
Mie	0	0	3	43	5	733	2	340	2	48	7	1,027	19	2,191
Shiga	0	0	2	313	4	501	2	208	0	0	4	170	12	1,192
Kyoto	0	0	4	259	3	221	1	76	1	94	5	421	14	1,071
Osaka	0	0	2	338	3	225	5	819	0	0	10	1,073	20	2,455
Hyogo	0	0	3	132	6	501	3	122	1	44	13	1,268	26	2,067
Nara	1	76	1	3	1	50	4	178	1	6	8	672	16	985
Wakayama	1	2	1	450	6	624	2	135	1	131	4	383	15	1,725
Tottori	0	0	0	0	1	140	3	275	0	0	2	191	6	606
Shimane	0	0	1	40	2	117	4	218	1	125	4	342	12	842
Okayama	0	0	0	0	7	663	3	270	0	0	12	1,267	22	2,200
Hiroshima	1	60	4	98	7	687	5	325	1	176	20	1,252	38	2,598
Yamaguchi	0	0	0	0	5	597	3	93	0	0	10	690	18	1,380
Tokushima	0	0	3	210	6	400	2	45	1	35	4	291	16	981
Kagawa	0	0	1	30	2	257	3	189	1	2	4	450	11	927
Ehime	0	0	0	0	9	1,155	1	35	2	67	4	178	16	1,435
Kochi	1	47	2	40	6	774	3	139	0	0	8	245	20	1,245
Fukuoka	1	90	4	117	7	953	6	957	0	0	14	1,379	32	3,495
Saga	1	10	0	0	3	300	3	475	0	0	6	641	13	1,426
Nagasaki	0	0	1	22	8	702	10	809	0	0	12	688	31	2,221
Kumamoto	1	145	3	161	2	110	3	198	1	91	12	685	22	1,390
Oita	0	0	1	50	5	229	2	140	0	0	10	1,076	18	1,495
Miyazaki	0	0	0	0	6	375	3	262	0	0	11	593	20	1,230
Kagoshima	0	0	2	123	8	516	2	19	2	98	14	1,270	28	2,026
Okinawa	2	60	3	43	1	80	0	0	0	0	5	366	11	549
Total	38	2,779	87	5,899	236	24,663	172	14,336	29	2,204	406	34,983	968	84,864

Note: Figures include facilities of which construction started in FY2014 and idle facilities, but not abolished facilities.

Source: "Waste treatment in Japan (FY2014)," Ministry of the Environment

5.25 Diffusion of Johkasou and community plants by prefecture

(As of the end of FY2015)

	Rate of population served by sewage treatment system	Coverage rate of Johkasou (Both black + grey water type)	Coverage rate of community plants
Hokkaido	95.0%	3.0%	0.0%
Aomori	77.1%	9.6%	0.0%
Iwate	79.0%	13.0%	0.1%
Miyagi	89.8%	6.4%	0.3%
Akita	85.4%	11.4%	0.0%
Yamagata	90.8%	7.9%	0.0%
Fukushima	81.1%	21.9%	0.0%
Ibaraki	82.6%	16.0%	0.3%
Tochigi	84.4%	15.5%	0.1%
Gunma	78.5%	18.5%	1.2%
Saitama	90.6%	9.5%	0.0%
Chiba	86.6%	12.8%	0.1%
Tokyo	99.7%	0.2%	0.0%
Kanagawa	97.9%	1.3%	0.0%
Niigata	85.9%	5.3%	0.0%
Toyama	96.1%	3.3%	0.3%
Ishikawa	93.3%	4.4%	0.2%
Fukui	94.2%	4.9%	0.0%
Yamanashi	80.7%	13.3%	0.7%
Nagano	97.4%	5.7%	0.0%
Gifu	91.0%	10.2%	0.2%
Shizuoka	78.7%	15.4%	0.4%
Aichi	89.1%	10.3%	0.1%
Mie	82.6%	25.2%	0.2%
Shiga	98.5%	2.8%	0.0%
Kyoto	97.6%	2.2%	0.0%
Osaka	97.3%	2.0%	0.0%
Hyogo	98.7%	1.9%	1.2%
Nara	87.7%	8.0%	0.2%
Wakayama	60.6%	30.3%	0.0%
Tottori	92.7%	6.0%	0.1%
Shimane	77.8%	15.1%	0.6%
Okayama	84.4%	16.4%	0.0%
Hiroshima	86.6%	11.4%	0.5%
Yamaguchi	85.6%	16.3%	0.0%
Tokushima	57.3%	36.1%	1.0%
Kagawa	74.3%	28.5%	0.1%
Ehime	76.3%	20.7%	0.2%
Kochi	74.8%	34.7%	0.2%
Fukuoka	91.1%	9.4%	0.3%
Saga	81.1%	14.4%	0.1%
Nagasaki	78.8%	13.5%	0.4%
Kumamoto	85.3%	14.2%	0.0%
Oita	73.6%	21.2%	0.1%
Miyazaki	83.8%	21.2%	0.0%
Kagoshima	77.7%	33.6%	0.3%
Okinawa	85.5%	10.0%	0.0%
Total	89.9%	9.1%	0.2%
(The end of FY2014)	(89.5%)	(8.9%)	(0.2%)

Note:

In FY2015, Soma city, Minamisoma city, Hirono town, Naraha town, Tomioka town, Kawauchi village, Okuma town, Futaba town, Namie town, Katsurao village and Iitate village in Fukushima prefecture were out of the scope of the survey to tabulate because they were affected by the Great East Japan Earthquake.

Source: "Diffusion of Johkasou (as of the end of FY2015)," Ministry of the Environment

5.26 Population served by waste-water treatment system by year

	Rate of population served by waste water treatment system (B/A)	Total population (A) (Thousand person)	Total population served by waste-water treatment system (B) (Thousand person)	Sewage system (Thousand person)	Agricultural drainage facilities (Thousand person)	Johkasou (Both black + grey water type) (Thousand person)	Community Plant (Thousand person)
FY2000	71.4%	126,285	90,182	78,031	2,589	9,139	423
2001	73.7%	126,478	93,260	80,317	2,896	9,646	402
2002	75.8%	126,688	95,990	82,570	3,106	9,932	382
2003	77.7%	126,824	98,536	84,584	3,280	10,297	375
2004	79.4%	126,869	100,793	86,365	3,439	10,618	371
2005	80.9%	127,055	102,815	88,021	3,521	10,926	347
2006	82.4%	127,053	104,680	89,610	3,607	11,142	322
2007	83.7%	127,066	106,347	91,106	3,697	11,214	330
2008	84.8%	127,076	107,741	92,412	3,741	11,273	314
2009	85.7%	127,058	108,899	93,600	3,785	11,236	278
※ 2010	86.9%	121,233	105,311	91,035	3,435	10,590	250
※ 2011	87.6%	123,350	108,104	93,548	3,502	10,794	263
※ 2012	88.1%	126,396	111,378	96,446	3,601	11,065	266
※ 2013	88.9%	126,186	112,160	97,136	3,564	11,208	251
※ 2014	89.5%	126,017	112,755	97,751	3,520	11,245	239
※ 2015	89.9%	127,663	114,741	99,259	3,583	11,667	232

Notes:

- Due to rounding off, a sum of the breakdown may not match the total population.
- The figure of "Total Population" is quoted from population of Basic Resident Register published by Ministry of Internal Affairs and Communications.
- In FY2010, Iwate, Miyagi, and Fukushima prefectures were out of the scope of the survey to tabulate because the prefectures were affected by the Great East Japan Earthquake.
- In FY2011, Iwate and Fukushima prefectures were out of the scope of the survey to tabulate because the prefectures were affected by the Great East Japan Earthquake.
- In FY2012, 2013 and 2014, Fukushima prefecture was out of the scope of the survey to tabulate because the prefecture was affected by the Great East Japan Earthquake.
- In FY2015, Soma city, Minamisoma city, Hirono town, Naraha town, Tomioka town, Kawauchi village, Okuma town, Futaba town, Namie town, Katsurao village and Iitate village in Fukushima prefecture were out of the scope of the survey to tabulate because they were affected by the Great East Japan Earthquake.
- Due to evacuation caused by the Great East Japan Earthquake, the population in Fukushima prefecture is fluid.

Source: From materials for "press release of "population served by waste disposal system (September, 2015), " Ministry of the Environment

5.27 Changes in expenses for night soil treatment projects

(Unit : Million yen / year)

		FY2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total population (Thousand people)		127,299	127,507	127,606	127,712	127,781	127,487	127,529	127,429	127,302	127,146	128,622	128,394	128,181
Target population	Septic tanks	33,471	32,879	32,330	31,646	30,834	30,199	29,683	28,801	28,323	27,877	27,682	27,179	26,687
	Total Population without flush toilet	17,824	16,455	15,215	14,186	13,205	12,306	11,819	10,810	10,114	9,460	8,956	8,329	7,810
	Total	51,295	49,333	47,545	45,832	44,039	42,505	41,502	39,611	38,437	37,337	36,638	35,508	34,497
Revenues (Municipalities)	General revenue source	226,355	218,735	208,676	203,003	196,471	198,554	186,694	180,919	172,002	173,892	169,832	220,491	225,144
	Earmarked revenue sources	National treasury disbursement	4,434	3,824	5,181	8,321	6,869	4,870	4,542	4,167	5,860	4,398	4,265	170,434
		Prefectural disbursement	2,108	2,276	1,794	1,903	2,224	1,510	1,309	1,285	1,386	1,411	1,235	5,278
		Handling fees/commissions	25,495	23,400	24,690	25,445	36,782	34,436	32,538	31,601	29,946	29,225	28,598	1,819
		Local Bonds	8,565	4,285	8,072	16,186	21,706	8,241	7,725	8,492	6,514	10,341	7,400	27,887
		Others	4,782	5,903	5,550	8,602	7,730	7,496	6,663	6,803	5,905	7,123	5,350	9,353
		Subtotal	45,383	39,688	45,286	60,456	75,311	56,553	52,776	52,347	49,612	52,498	46,848	5,721
	Total	271,738	258,423	253,962	263,459	271,782	246,107	239,470	233,266	221,613	226,389	216,680	50,057	50,187
Expenditure (Total of municipalities and cooperatives)	Expenses for night soil treatment		335,231	314,519	310,648	313,596	271,782	246,107	238,737	231,594	221,613	226,332	216,634	220,491
	Construction and improvement costs	Construction	Expenses for travelling or the like.	—	—	—	—	4,373	1,252	683	591	688	267	219
			Intermediate processing facilities	53,219	42,522	46,640	57,569	31,090	13,164	15,157	19,192	16,992	22,147	16,557
			Final disposal site	3,687	2,499	2,929	4,996	2,547	884	96	169	367	690	357
			Others	4,527	6,763	5,480	3,636	2,948	2,457	1,191	1,054	904	1,327	1,617
			Inspection fee	551	634	432	1,918	287	297	274	454	396	342	396
		Subtotal	61,984	52,417	55,481	68,119	41,245	18,054	17,401	21,461	19,347	24,772	19,147	24,565
	(Reference) Financial contributions to partial-affairs association		7,644	7,764	6,525	7,677	3,473	1,899	2,377	3,779	4,119	5,387	2,979	4,506
	Processing and maintenance costs, etc.	Outsourcing costs	Labor cost	71,816	67,528	64,541	60,463	57,199	59,496	55,757	50,413	47,251	45,326	42,993
			Collection and transportation	5,911	5,716	5,129	4,949	3,665	4,865	5,256	3,937	3,704	3,752	3,532
			Intermediate treatment	80,766	75,088	73,745	71,164	70,420	65,496	66,837	63,317	61,808	61,073	60,936
			Final disposal	3,852	3,555	4,000	2,888	2,679	2,630	2,624	2,070	1,777	1,906	2,085
			Purchasing vehicles and related costs	804	515	704	463	451	374	415	491	437	343	249
			Collection and transportation	—	—	—	36,076	33,746	31,086	29,983	28,906	27,865	27,178	26,181
			Intermediate treatment	—	—	—	30,240	32,105	33,571	33,657	35,041	35,824	38,062	38,071
			Final disposal	—	—	—	7,502	5,510	4,635	4,444	4,143	3,470	3,631	3,104
			Others	—	—	—	8,713	4,547	4,342	3,835	4,601	3,868	3,719	3,623
			Total outsourcing costs	80,473	79,432	76,977	82,530	75,908	73,633	71,920	72,690	71,026	72,590	70,979
			Others	12,301	12,172	11,640	—	—	—	—	—	—	16,471	16,621
			Research expenses	—	—	—	704	103	63	67	169	227	99	93
		Subtotal	255,922	244,007	236,736	223,162	210,424	206,558	202,875	193,087	186,231	185,089	180,866	180,494
	(Reference) Financial contributions to partial-affairs association		103,433	98,838	93,326	81,268	77,326	75,124	73,951	72,664	67,887	65,849	66,250	64,546
	Others		17,325	18,094	18,431	22,315	20,112	21,495	18,461	17,046	16,035	16,471	16,621	15,433
Expenses of urine treatment project per person (Yen / person, year)		6,500	6,400	6,500	6,800	6,200	5,800	5,800	5,800	5,800	6,100	5,900	6,200	6,500

Note:

"Financial contributions to a partial-affairs association" are payable to a partial-affairs association from the municipality and are not included in the totals because they are appropriated for the expenses of the treatment projects.

Source: "Waste Treatment in Japan (annual version)," Ministry of the Environment

5.28 Production and Shipment of Major Agrochemicals

Agrochemical type	Production/ shipment	2012 Agrochemical year	2013	2014	2015
Insecticides	Production	82,878	82,831	82,526	81,015
	Shipment	83,711	84,356	83,162	76,202
Disinfectants	Production	44,397	43,965	45,114	43,536
	Shipment	43,900	43,245	43,238	41,722
Insect - fungicides	Production	23,200	20,086	20,765	20,213
	Shipment	20,991	20,266	19,844	19,054
Herbicides	Production	72,923	78,345	82,410	81,875
	Shipment	71,423	75,511	77,406	78,866
Rodenticides	Production	308	344	304	321
	Shipment	338	349	337	315
Plant growth regulators (PGRs)	Production	1,877	1,544	1,590	1,581
	Shipment	1,618	1,692	1,652	1,457
Adjuvants	Production	2,851	2,833	2,898	2,779
	Shipment	2,824	2,750	2,887	2,760
Other	Production	7,080	8,827	8,068	7,691
	Shipment	7,619	8,176	8,019	7,403
Total	Production	235,515	238,773	243,675	239,011
	Shipment	232,483	236,345	236,545	227,779

Notes:

- Unit: t or kl.
- An agrochemical year refers a year from October in the previous year to September in the current year.
- "Other" under the heading "Agrochemical type" presents a total of the following:
agrochemical fertilizer; insect-fungicide-PGR combination; repellent; lime and others (excluding calcium cyanamide).

Source: "Agrochemical handbook 2016," Japan Plant Protection Association

5.29 Production of chemical fertilizer

(Unit : t)

Chemical fertilizer year	Ammonium sulfate	Calcium cyanamide	Urea	Ammonium nitrate	Ammonium chloride
2005	1,419,512	60,187	427,150	39,319	91,938
2006	1,455,571	55,422	449,579	35,532	84,667
2007	1,479,520	51,019	453,487	29,400	67,147
2008	1,208,438	49,466	403,417	30,400	77,744
2009	1,351,078	49,439	366,955	-	70,611
2010	1,320,726	42,969	412,670	-	74,293
2011	1,270,308	52,511	453,487	-	73,976
2012	1,224,963	47,913	358,338	-	79,284
2013	1,215,016	46,251	347,536	-	74,508
2014	1,125,979	37,957	304,768	-	65,685

Chemical fertilizer year	Calcium superphosphate	Double/triple superphosphate	Calcined phosphate	Fused phosphate	High analysis compound fertilizers
2005	186,831	19,223	79,804	68,410	1,034,520
2006	175,100	22,423	69,160	63,941	965,793
2007	185,479	30,243	71,183	70,738	939,907
2008	165,332	22,465	52,788	61,388	721,445
2009	137,534	7,839	45,962	48,724	718,235
2010	149,328	8,672	62,677	49,666	791,827
2011	139,312	8,819	55,295	46,654	790,627
2012	124,298	6,783	50,135	41,075	785,899
2013	106,035	8,587	46,520	36,578	774,394
2014	107,076	9,035	47,017	31,270	720,239

Notes:

- Data for Ammonium nitrate are no longer taken after FY2009.
- Chemical fertilizer year starts on July 1st and finishes on June 30th in the following year.

Source: "Pocket handbook of chemical fertilizer," Association of Agriculture and Forestry Statistics

5.30 Changes in numbers of soil pollution incidents where Environmental Quality Standards (EQS) were exceeded

	Incidents that exceeded EQS for soil pollution	
Prior to FY1993	32	
1994	25	
1995	37	
1996	50	
1997	48	
1998	130	
1999	130	
2000	151	
2001	210	
2002	274	(0)
2003	366	(21)
2004	456	(43)
2005	673	(48)
2006	696	(77)
2007	728	(81)
2008	700	(71)
2009	575	(94)
2010	798	(275)
2011	943	(468)
2012	906	(487)
2013	867	(479)
2014	938	(586)
Cumulative Total	8,795	(2,144)

Notes:

- "Incidents that exceed EQS" refers to the number of incidents that exceed either the designated standards by the Soil Contamination Countermeasures Act or EQS for soil contamination.
- Parenthesized figures are the numbers of over-the-standards incidents identified by a survey based on laws.

Source: "The survey on the enforcement status of the Soil Contamination Countermeasures Act and Soil Contamination Investigations and Countermeasures in FY 2014," Ministry of the Environment

5.31 Number of soil contamination investigations and countermeasures taken by prefecture

Prefectures (including ordinance-designated cities)		Number of cases						
		Number of survey results reported	Number of designated cases	VOC	Heavy metals and the like	Agrochemicals and the like	Complex contamination	Survey not conducted
Hokkaido area	Hokkaido	79	44	9	26	0	5	4
	Total	79	44	9	26	0	5	4
Tohoku area	Aomori	27	11	0	9	0	0	2
	Iwate	25	9	1	7	0	1	0
	Miyagi	57	46	6	35	0	3	2
	Akita	11	5	0	5	0	0	0
	Yamagata	29	6	1	5	0	0	0
	Fukushima	71	40	0	37	0	2	1
	Total	220	117	8	98	0	6	5
Kanto area	Ibaraki	65	32	1	25	0	6	0
	Tochigi	53	26	5	14	0	7	0
	Gunma	95	30	2	23	0	4	1
	Saitama	296	159	28	111	0	19	1
	Chiba	143	87	11	66	1	7	2
	Tokyo	1,032	582	58	455	0	67	2
	Kanagawa	506	283	41	196	0	37	9
	Niigata	120	45	11	33	0	1	0
	Yamanashi	45	26	4	19	0	3	0
	Shizuoka	117	59	3	42	0	10	4
	Total	2,472	1,329	164	984	1	161	19
Chubu area	Toyama	13	9	4	5	0	0	0
	Ishikawa	35	19	0	18	0	1	0
	Fukui	31	14	2	11	0	0	1
	Nagano	46	28	5	16	0	7	0
	Gifu	52	27	5	22	0	0	0
	Aichi	285	127	12	105	0	8	2
	Mie	21	4	1	1	0	0	2
	Total	483	228	29	178	0	16	5
Kinki area	Shiga	63	15	0	14	0	1	0
	Kyoto	91	58	2	51	0	4	1
	Osaka	621	372	17	312	0	37	6
	Hyogo	277	170	16	140	1	10	3
	Nara	15	8	1	7	0	0	0
	Wakayama	21	6	1	4	0	0	1
	Total	1,088	629	37	528	1	52	11
Chugoku · shikoku area	Tottori	13	6	0	5	0	1	0
	Shimane	8	2	0	2	0	0	0
	Okayama	39	25	3	22	0	0	0
	Hiroshima	73	38	2	31	0	4	1
	Yamaguchi	39	32	3	25	0	4	0
	Tokushima	17	2	1	1	0	0	0
	Kagawa	30	13	1	11	0	1	0
	Ehime	21	5	0	4	0	1	0
	Kochi	1	1	0	1	0	0	0
	Total	241	124	10	102	0	11	1
Kyushu area	Fukuoka	151	79	4	60	0	10	5
	Saga	8	4	0	4	0	0	0
	Nagasaki	30	25	2	22	0	1	0
	Kumamoto	32	24	2	22	0	0	0
	Oita	24	17	2	15	0	0	0
	Miyazaki	16	4	0	4	0	0	0
	Kagoshima	37	11	0	11	0	0	0
	Okinawa	13	3	0	2	0	1	0
	Total	311	167	10	140	0	12	5
Grand Total		4,894	2,638	267	2,056	2	263	50

Note

- The figures are the number of surveys conducted based on the Soil Contamination Countermeasures Act.
- The figures are cumulative total from the enforcement date of the Soil Contamination Countermeasures Act (February 15th, 2003) to the end of FY2014.

Source: "The survey on the enforcement status of the Soil Contamination Countermeasures Act and Soil Contamination Investigations and Countermeasures in FY 2014," Ministry of the Environment

5.32 Progress of agricultural land soil pollution countermeasures

Specific harmful substance		①Area where values above the standard levels were detected, etc.									
		② Designated area needing countermeasures							⑨Area completed a project by the sole prefecture	⑩ Undesignated area	
		③Area where plans for countermeasures have been already formulated					⑧Area where formulation of plans for countermeasures is in progress				
		④Area where project for countermeasures have been already completed			⑦Area with projects for countermeasures in progress						
					⑤ Designation has canceled	⑥Not yet					
Cadmium		7,050ha	6,460ha	6,375ha	6,176ha	5,939ha	237ha	199ha	85ha	393ha	196ha
		97	64	64	63	59	11	13	1	52	17
Copper		1,405ha	1,225ha	1,225ha	1,199ha	1,169ha	30ha	26ha	—	171ha	9ha
		37	12	12	12	12	1	1	—	25	1
Arsenic		391ha	164ha	164ha	164ha	150ha	14ha	—	—	162ha	65ha
		14	7	7	7	6	1	—	—	7	5
Total	Area	7,592ha	6,609ha	6,524ha	6,325ha	6,074ha	251ha	199ha	85ha	713ha	270ha
	# of areas	134	73	73	72	67	12	13	1	80	22
							⑪Completed area (=④+⑨)			7,038ha	
							⑫Progression rate (=⑪／①×100)			92.7%	
(Upper row: Area, Lower row: Number of areas)											

(Upper row: Area, Lower row: Number of areas)

Notes:

- "Area where values above the standard levels were detected, etc. is based on the results of detailed investigation until fiscal year 2015.
- When added up the columns vertically, the sum does not match the "Total" column because of multiple contaminations.
- When added up the rows horizontally, the sum of the regions is not consistent with the value in "Total" since there are some areas where designation is partially canceled, or projects for countermeasures are partially completed.
- "Area where plans for countermeasures have been already completed" among "Area where plans for countermeasures have been formulated" refers to the area where state-subsidized surface work has been completed as well as the areas that have been changed their purposes of use.
- "Area completed a project by the sole prefecture" includes the area that no longer contamination is detected as the area has been changed its use in purposes.

Source: "Enforcement status of the Soil Contamination Countermeasures Act for farmland in FY 2015," Ministry of the Environment

5.33 Designated-contamination areas and areas with projects for countermeasures completed in each year

(Unit: ha)

	①Above the detection standard value	②Designated area	③Formulation of plans for countermeasures	④Completion of projects for countermeasures		⑤Area which requires future countermeasures
	Cumulative area	Cumulative	Cumulative	Current FY	Cumulative	Current FY
FY 1970						
1971		112				
1972		400	164	70	70	
1973		1,140	357	30	100	
1974		2,579	502	30	130	
1975	6,100	3,398	713	40	170	5,930
1976	6,200	4,110	887	460	630	5,570
1977	6,390	4,336	1,650	10	640	5,750
1978	6,440	4,459	1,896	340	980	5,460
1979	6,510	4,577	2,334	370	1,350	5,160
1980	6,530	4,674	2,836	250	1,600	4,930
1981	6,610	4,891	3,015	270	1,870	4,740
1982	6,700	5,390	3,233	250	2,120	4,580
1983	6,710	5,451	4,148	320	2,440	4,270
1984	6,910	5,616	4,197	250	2,690	4,220
1985	7,030	6,053	4,364	330	3,020	4,010
1986	7,030	6,053	4,660	280	3,300	3,730
1987	7,030	6,078	4,841	320	3,620	3,410
1988	7,050	6,122	4,865	340	3,960	3,090
1989	7,050	6,146	4,911	220	4,180	2,870
1990	7,050	6,146	4,938	180	4,360	2,690
1991	7,050	6,146	6,021	120	4,480	2,570
1992	7,140	6,214	6,021	120	4,600	2,540
1993	7,140	6,255	6,105	120	4,720	2,420
1994	7,140	6,258	6,170	200	4,920	2,220
1995	7,140	6,258	6,170	240	5,160	1,980
1996	7,140	6,262	6,173	140	5,300	1,840
1997	7,140	6,265	6,176	110	5,410	1,730
1998	7,152	6,266	6,178	160	5,570	1,582
1999	7,156	6,266	6,181	61	5,631	1,525
2000	7,166	6,266	6,181	187	5,818	1,348
2001	7,217	6,275	6,181	54	5,872	1,345
2002	7,224	6,275	6,181	182	6,054	1,170
2003	7,228	6,276	6,190	254	6,308	920
2004	7,327	6,376	6,236	49	6,357	970
2005	7,327	6,376	6,236	41	6,398	929
2006	7,483	6,577	6,306	162	6,560	923
2007	7,487	6,577	6,306	20	6,580	907
2008	7,487	6,577	6,492	20	6,600	887
2009	7,487	6,577	6,492	105	6,705	782
2010	7,575	6,577	6,492	23	6,728	847
2011	7,575	6,577	6,492	57	6,785	790
2012	7,592	6,577	6,492	119	6,904	688
2013	7,592	6,577	6,492	40	6,944	648
2014	7,592	6,609	6,492	32	6,976	616
2015	7,592	6,609	6,524	62	7,038	554

Notes:

- "③Formulation of plans for countermeasures" column is tabulated by the year when Minister of Environment approved the plans.
- "④Completion of projects for countermeasures" includes the area where countermeasures only by prefectures have been completed. Also, partially completed areas are not included in fiscal year 1977.
- Figures of "④Completion of projects for countermeasures" and "⑤Area which requires future countermeasures" from FY2009 to FY2014 were updated.

Source: "Enforcement status of the Soil Contamination Countermeasures Act for farmland in FY 2015," Ministry of the Environment

5.34 Use of ground water in Japan

(Unit : Ten thousand m³ / year)

		Total amount of water used	Surface water and the like	Ground water	Dependency on ground water (%)	Source
FY 1972	For industrial use	127.7	82.0	45.7	36	1972 Statistical Charts on Industry
	For city water	116.3	90.0	26.3	23	FY 1972 Statistics on water supply
	For agriculture	528	495.3	32.7	6.2	Refer to the Notes at the bottom.
1978	For industrial use	116.9	77.7	39.2	34	1977 Statistical Charts on Industry
	For city water	132.9	105.0	27.9	21	FY 1977 Statistics on water supply
	For agriculture	570	532.5	37.5	6.6	Refer to the Notes at the bottom.
1983	For industrial use	105.4	72.6	32.9	31	1982 Statistical Charts on Industry
	For city water	140.6	110.4	30.2	21	FY 1982 Statistics on water supply
	For agriculture	580	542.5	37.5	6.5	Refer to the Notes at the bottom.
1987	For industrial use	103.3	72.5	30.8	30	1987 Statistical Charts on Industry
	For city water	152.2	118.0	34.2	22	FY 1987 Statistics on water supply
	For agriculture	585	546.2	38.8	7	1990 Water supply in Japan
1993	For industrial use	107.0	76.5	30.5	29	1992 Statistical Charts on Industry
	For city water	167.4	131.0	36.4	22	FY 1992 Statistics on water supply
	For agriculture	586	547.2	38.8	7	1994 Water supply in Japan
1998	For industrial use	101.0	73.3	27.8	27	1997 Statistical Charts on Industry
	For city water	169.3	132.6	36.7	22	FY 1997 Statistics on water supply
	For agriculture	589.7	550.9	38.8	7	1999 Water supply in Japan
2003	For industrial use	92.4	68.4	24.0	26	2002 Statistical Charts on Industry
	For city water	165.0	130.4	34.6	21	FY 2002 Statistics on water supply
	For agriculture	568.0	535.0	33.0	6	2004 Water supply in Japan
2008	For industrial use	90.1	67.7	22.4	25	2007 Statistical Charts on Industry
	For city water	161.7	129.1	32.6	20	FY 2007 Conditions of the source of water supply
	For agriculture	547.0	514.0	33.0	6	2009 Water supply in Japan
2009	For industrial use	87.5	66.2	21.3	24	2008 Statistical Charts on Industry
	For city water	159.1	127.3	31.8	20	FY 2008 Conditions of the source of water supply
	For agriculture	546.0	513.0	33.0	6	2010 Water supply in Japan
2010	For industrial use	82.4	62.7	19.7	24	2009 Statistical Charts on Industry
	For city water	158.2	127.0	31.2	20	FY 2009 Conditions of the source of water supply
	For agriculture	546.0	517.3	28.7	5	2011 Water supply in Japan
2011	For industrial use	83.5	63.5	20.0	24	2010 Statistical Charts on Industry
	For city water	158.4	127.0	31.4	20	FY 2010 Conditions of the source of water supply
	For agriculture	544.0	515.3	28.7	5	2012 Water supply in Japan
2012	For industrial use (2011)	79.5	60.3	19.2	24	2011 Statistical Charts on Industry
	For city water (FY 2011)	157.3	126.5	30.8	20	FY 2011 Conditions of the source of water supply
	For agriculture (2008)	546.0	517.3	28.7	5	2013 Water supply in Japan
2013	For industrial use (2012)	81.0	61.4	19.6	24	2012 Statistical Charts on Industry
	For city water (FY 2012)	155.9	125.4	30.5	20	FY 2012 Conditions of the source of water supply
	For agriculture (2008)	546.0	517.3	28.7	5	2014 Water supply in Japan
2014	For industrial use (2013)	79.4	60.3	19.0	24.0	2013 Statistical Charts on Industry
	For city water (FY 2013)	155.4	125.2	30.2	19.5	FY 2012 Conditions of the source of water supply
	For agriculture (2008)	546.0	517.3	28.7	5.3	2014 Water supply in Japan
2015	For industrial use (2014)	79.2	59.6	19.6	24.7	2013 Statistical Charts on Industry
	For city water (FY 2014)	153.3	123.7	29.6	19.3	FY 2013 Conditions of the source of water supply
	For agriculture (2008)	546.0	517.3	28.7	5.3	2014 Water supply in Japan

Note:

- Data for industrial use is calculated from by "Statistical chart on industry", Ministry of Economy, Trade and Industry, based on 300 operating days.

Total quantity of water for industrial use refers to freshwater abstraction except recycled water, and ground water refers to water from wells (water taken from shallow wells, deep wells and spring water).

- Data for water and sewerage service prior to FY 2003 was tabulated (water supply and wholesale supply were combined) based on the quantity of water abstraction from 'Statistics on water supply survey' provided from Ministry of Health, Labor and Welfare.

Ground water refers to water from wells (both shallow wells and deep wells).

Source: Total quantity of water for agriculture and the quantity of ground water for agriculture for FY 1972 were provided by Ministry of Agriculture, Forestry and Fisheries

Data of total quantity of water for agriculture in 1978 is an estimated data for water demand in 1983

Figure of ground water for agricultural use is from "Survey on use of underground water for agricultural use" (actual FY1979) , Ministry of Agriculture, Forestry, and Fisheries

Data of total quantity of water for agriculture in 1983 is an estimated data for water demand in 1980

5.35 Changes in nationwide ground subsidence

	Area subsided at 2 cm or more per year		Area subsided at 4 cm or more per year	
	Number of areas	Square kilometers (km ²)	Number of areas	Square kilometers (km ²)
FY 1978	28	1,946	13	404
1979	25	624	9	176
1980	23	467	8	100
1981	25	689	8	60
1982	22	616	8	45
1983	22	594	6	45
1984	31	814	12	161
1985	19	499	7	40
1986	18	396	6	7
1987	12	500	7	22
1988	17	617	5	63
1989	16	285	4	7
1990	18	360	5	14
1991	17	467	4	6
1992	19	525	6	25
1993	11	276	1	0
1994	21	902	6	113
1995	14	21	2	0
1996	13	258	4	22
1997	9	244	—	—
1998	9	250	—	—
1999	9	6	—	—
2000	7	6	—	—
2001	9	28	—	—
2002	8	461	—	—
2003	6	3	1	0
2004	9	176	2	0
2005	7	4	—	—
2006	5	17	1	1
2007	9	72	—	—
2008	3	1	2	0
2009	6	24	1	0
2010	6	6	—	—
2011	14	5,920	11	4,061
2012	7	2	—	—
2013	4	1	—	—
2014	2	2	—	—
2015	6	21	—	—

Note:

- Area is not measured for all areas subject to.
- "-" shows that there is no relevant data.
- "0" indicates to the case that the value is less than 0.5km².
- Area expressed in terms of Km² is rounded off at the first digit.
- The data in FY 2011 includes ground subsidence cases that are considered to be affected by Great East Japan Earthquake.

Source: "Nationwide ground subsidence in FY 2015," Ministry of the Environment