

Data of Sewage Works in Japan

As of End of FY 2009, March 2010

Fundamental

Number of WWTPs	2,136
Treated Wastewater, Million m ³ /year	14,267
Final Disposal Amount of Sewage Sludge, thousand ton per year	2,503
Length of Sewer except Laterals, km	434,305
Length of Fiber Optical Cables in Sewer, km	2,129
Number of Local Gov. Employees for Sewage Works	49,715

Note : As of End of FY 2009

Access to Sanitary Wastewater Treatment System

	Population (*10,000)	Ratio
Centralized System	9,473	78%
Onsite System	1,059	9%
Access to Sanitary Sys.	10,532	87%
Total Population	12,123	100%

Note: As of End of FY 2010

Sewer Type by Municipality Pop.

Population	Sewer Type				total
	Combined		Separate		
	Partially Separate	Partially Combined	Partially Combined	Partially Separate	
700,000-	0	4	0	15	19
300,000-700,000	0	2	13	39	54
100,000-300,000	2	11	123	61	197
50,000-100,000	0	3	226	38	267
-50,000	0	0	893	12	905
total	2	20	1,255	165	1,442

Note: As of End of FY 2009

Treatment Process by Capacity

Treatment Process	Design Daily Maximum Flow, Dry Weather, (1000 m3/day)						total
	Less than 5	5 - 10	10 - 50	50 - 100	100 - 500	More than 500	
Sedimentation only	1		1				2
Anaerobic/Anoxic/Oxic(A2O)		3	12	8	19		42
Modified Ludzack-Ettinger	5	4	12	2	6	1	30
Wuhrmann	1		1				2
Step Feed	2	2	11	4	5		24
Anaerobic/Aerobic(AO)	13		5	3	10		31
Conventional Activated Sludge	41	49	321	119	119	13	662
Extended Aeration	36	5	2				43
Pure Oxygen	2	1	4	2	3		12
Step Aeration			1	2	2		5
Sequence Batch Reactor	61	9	2				72
Aerobic Biofiltration	23	5					28
Anaerobic/Aerobic Biofiltration	42	2					44
High Rate Trickling Filter		1	2				3
Submerged Fixed Bed Biofilm	11						11
Rotating Biological Contactor	10	6	1	1			18
Submerged Pebble Biofilm under Soil Ground	31						31
Oxidation Ditch with Automatic SRT Control	45	8					53
Oxidation Ditch	819	95	33				947
Others	37	11	16	3	9		76
total	1,180	201	424	144	173	14	2,136

Note-1 : In case a treatment plant has more than one process, the major process is referred as the process of the plant.

Note-2 : As of End of FY 2009

Generation & Fate of Sludge by Form, DS

	million t/yr	
Total Sludge Generation	2.18	100%
Breakdown by form		
Dewatered to Landfill/Construction Material	0.17	8%
Incineration Ash to Landfill/Construction Material	1.48	68%
Melted Slug to Construction Material	0.19	9%
Compost for Agriculture	0.24	11%
Dried and others for Agriculture	0.09	4%

Note : for FY 2009

Sludge Recycling, 77%

	million t/yr
Reuse	
Construction	1.31
Agricultural	0.32
Landfill	0.45

Note : for FY 2009

Recycling of Organics, 24%

Total Generation	1.79 million t/yr
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Reuse

Digestion Gas	12%
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Agricultural	11%
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Solid Fuel	1%
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Unuse	76%
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Note : for FY 2009

Water Reuse

Total Effluent	14 billion m3/yr	100%
Reuse	204 million m3/yr	1%

Reuse Application

Natural Stream Augmentation	29%
Aesthetic Non Contact Stream	27%
Snow Melting	22%
Direct Supply to Individual Industrial Facilities	8%
Agricultural Irrigation	7%
Toilet Flush Water	4%
Recreational Contact Impoundments	2%
Supply to Industrial Water System	1%
Total	100%

Note : for FY 2009