

Fatal and non-fatal accidents in city water service in Japan in 1999-2021

city water service industry Code No.011603

Type of accidents in city water service in 1999-2021

Type of accidents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Type of accidents
fall from height	4	10	11	6	7	8	13	5	11	13	12	11	10	13	8	9	10	11	15	9	8	16	13	233	fall from height
falling to same level	16	7	12	8	13	14	8	12	11	9	17	10	17	17	5	12	8	10	11	17	11	11	12	268	falling to same level
crash	2	3	3	2	2	1	1	2	2	7	3	2	1	3	3	2	2			1	1	3	3	49	crash
struck by flying or falling object	1	3	2	3	2	1	4	2	2	1	1	4	3	3	2	3	3	1	1	3	3		4	52	struck by flying or falling object
collapse	1			1	1	1		2				1			1			1			1	1	1	12	collapse
crashed by	1	1	3			1	1		3	1	1	1			1	1	1		2		1	2	5	26	crashed by
caught in/between	3	2	7	3	4	3	4	2	7	3	7	3	3	2	2	3	2	1	1	2	4	5	3	76	caught in/between
cut	1	1		2		3	1	3			3		4	4	1	1	1	1		3		2	2	33	cut
injury to the sole of the foot		1			1						1	1												4	injury to the sole of the foot
drown						2		1			1		4					1	1				1	11	drown
contact to high/low-temperature									3	1	1	2						1		1			4	13	contact to high/low-temperature

engine											1												1	engine	
power transmission mechanism								1			1		3		1	1	2						1	10	power transmission mechanism
circular sawing machine											1		1										2	2	circular sawing machine
band sawing machine																									band sawing machine
wood planer machine																									wood planer machine
hollow chisel mortiser, wood borer																									hollow chisel mortiser, wood borer
chamfering machine, router, woodworking milling machine																									chamfering machine, router, woodworking milling machine
chain saw														1								1	1	3	chain saw
other woodworking machines								1								1							1	3	other woodworking machines
leveling, transporting or loading machine																									leveling, transporting or loading machine
excavating machine			1						1	1													1	4	excavating machine
foundation work machine																									foundation work machine

machine																								machine	
food manufacturing machine																								food manufacturing machine	
printing machine																								printing machine	
industrial robot																								industrial robot	
other general power machines			1		1		2	1	2	1			2	1	1			1	1		3	2		19	other general power machines
felling machine																								felling machine	
mobile logging machine																								mobile logging machine	
skyline yarding machine																								skyline yarding machine	
other mobile silviculture machine																								other mobile silviculture machine	
crane			1						1															2	crane
mobile crane												1									1	1		3	mobile crane
derrick crane																									derrick crane
elevator, lift																									elevator, lift
cargo lifting appliance																									cargo lifting appliance
gondola																									gondola
lumberyard equipment, logging																									lumberyard equipment, logging

gas welding equipment																								gas welding equipment	
arc welding equipment																									arc welding equipment
other welding equipment																									other welding equipment
kiln, caldron																									kiln, caldron
industrial dryer																									industrial dryer
other kiln, caldron																									other kiln, caldron
transmission															1							1	2	transmission	
electric power facilities									2		1												3	electric power facilities	
other electrical equipment			2																				2	other electrical equipment	
human power cranes																								human power cranes	
human power hauling equipment			1				1	1		1			1		2		1	1		1		1	11	human power hauling equipment	
human power machine															1								1	human power machine	
hand tool			1				2	1			3	2	1		2	1			2	2			2	19	hand tool
ladder			3		2		1	1	3	5	4	1	2	1	2	2	2	3	2	2	1	4	5	46	ladder
slinging tool									1															1	slinging tool
other tools					2								1		1	1		1		1	3	3	2	15	other tools

harmful substances				1					2											1	1	5	harmful substances		
metal material			2	2		1	1	1	2	1	3	1	2	1		2	1		1	2			23	metal material	
lumber, bamboo																								lumber, bamboo	
stone, sand, substance						3	1	1		1		1			1								8	stone, sand, substance	
other materials			1			1	3				1			1							1		8	other materials	
load			2			1	1	2	1	2	1		1		2	1		2	1			1	18	load	
machine/equipment as load										1													1	machine/equipment as load	
natural ground, rock				1		1				1	1					1							5	natural ground, rock	
standing tree			1			1		1					1		1								5	standing tree	
water							1			2		6											9	water	
abnormal environment																				1			1	abnormal environment	
high/cold temperature environment			1					1			1					1		1				3	8	high/cold temperature environment	
other environments			1		1		2	1	1	2	2			2		3		1		2	1	1	1	21	other environments
other causal agent			1		1		2	1	1	1		1		1				2			2	2		15	other causal agent
no causal agent			4		2		3	1				3	3	5	2	1	1	2	4	1	1	1	2	36	no causal agent
unclassifiable			1							1								1					3	unclassifiable	
total			59		47		46	51	51	54	66	52	60	57	36	49	43	36	47	45	42	53	59	953	total

Workers age of fatal and non-fatal accidents in city water service in 1999-2021

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Age
19 years old or less			1	1	1											1	1			1				6	19 years old or less
20-29	2	5	5	3	3	5	3	2	3	2	5	5	2	2	2	1	1	3	2	1	7	3	5	72	20-29
30-39	8	6	8	5	5	7	12	5	13	11	10	6	8	6	8	6	2	2	4	3	3	2	7	147	30-39
40-49	7	6	10	8	12	9	10	10	6	12	16	8	13	14	7	11	10	8	13	12	11	11	21	245	40-49
50-59	14	21	20	16	17	19	13	23	18	21	19	16	21	18	11	15	9	16	11	14	12	15	10	369	50-59
60 years old or more	7	11	15	7	9	10	8	11	11	8	16	17	16	17	8	15	20	7	17	14	9	22	16	291	60 years old or more
total	38	49	59	40	47	50	46	51	51	54	66	52	60	57	36	49	43	36	47	45	42	53	59	1,130	total

Workers' number of workplace of fatal and non-fatal accidents in city water service in 1999-2021

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Workers scale
9 workers or less	9	3	12	6	10	7	10	9	4	3	5	3	6	10	3	4	5	3	3	2	6	4	7	134	9 workers or less
10-29	9	15	10	12	12	16	13	12	15	16	19	14	13	16	13	9	9	10	8	16	9	13	17	296	10-29
30-49	4	12	11	3	7	9	8	7	11	10	17	14	12	11	7	15	10	10	13	11	12	9	16	239	30-49
50-99	8	6	12	3	7	9	4	13	10	13	10	6	13	11	6	11	9	5	11	11	5	5	6	194	50-99
100-299	4	12	11	12	10	9	8	10	8	11	12	11	11	7	4	9	9	6	6	5	8	15	12	210	100-299
300 workers or more	4	1	3	4	1		3		3	1	3	4	5	2	3	1	1	2	6		2	7	1	57	300 workers or more

total	38	49	59	40	47	50	46	51	51	54	66	52	60	57	36	49	43	36	47	45	42	53	59	1,130	total
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Month of fatal and non-fatal accidents in city water service in 1999-2021

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Month
January	5	2	4		6	4	3	8	4	1	4	3	3	6	7	5	3	3	3	2	3	6	6	91	January
February	6	4	5	4	2	4	9	8	4	5	9	6	6	5	1	2	5	3	4	6	4	4	4	110	February
March	2	3	10	2	4	5	4	3	5	6	5	4	9	5	2	4	3	1	2	2	1	2	5	89	March
April	1	3	5	8	6	6	1	3	3	2	8	2	5	6	2	4	7	1	2	7		5	7	94	April
May	4	4	8	3	5	2	4	5	7	8	5	7	4	8	4	3	4	2	3	1	4	8	5	108	May
June	4	6	2	5	5	5	3	2	3	7	1	6	5	3	3	4	2	1	8	4	7	7	4	97	June
July	1	7	7	3	5	7	8	3	4	9	4	4	4	3	3	2	3	2	3	4	3	5	5	99	July
August	3	1	3	2	4	7	6	6	6	3	7	8	5	4	3	3	3	7	4	5	2	2	7	101	August
September	6	4	3	3	3	2	1	2	6	7	5	4	6		2	8	2	4	3	3	2	4	3	83	September
October	1	6	6	1	3	3	3	4	1	3	8	2	6	2	5	4	6	4	6	4	6	6	3	93	October
November	4	7	4	7	3	3	1	3	3	1	5	5	3	9	1	6	3	5	3	3	6	1	4	90	November
December	1	2	2	2	1	2	3	4	5	2	5	1	4	6	3	4	2	3	6	4	4	3	6	75	December
total	38	49	59	40	47	50	46	51	51	54	66	52	60	57	36	49	43	36	47	45	42	53	59	1,130	total

Prefecture of fatal and non-fatal accidents in city water service in 1999-2021

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Prefecture
Hokkaido	1	2	2		2		4	2	3	4	3	1		1		4	1	3	2	3	3	1	1	43	Hokkaido

Aomori		1													2			1	1	2			7	Aomori		
Iwate			1		1			4	1		1	1	2					2						13	Iwate	
Miyagi	1	2	2				1	1	2	3	1		6	4		1			1			2		27	Miyagi	
Akita			1										1	1			1							4	Akita	
Yamagata	1	1	1				2					1							1				1	8	Yamagata	
Fukushima							1	2	1		3					1	1			1			1	11	Fukushima	
Ibaraki	1				1				1		1				3			1		1		1	1	11	Ibaraki	
Tochigi	1	1											2										1	5	Tochigi	
Gunma			2						1				1						1					5	Gunma	
Saitama	1	2	2		1		2	4		1	1			2	1	3	1	1		3	1	1	2	29	Saitama	
Chiba	2		1		1				1		2	2		2		1	1	2	3	3		2		23	Chiba	
Tokyo	2	2	5		3		3	4	2	6	6	5	4	7	4	5	3	3	2	3	4	4	4	81	Tokyo	
Kanagawa	5	11	7		12		8	9	5	10	12	9	15	7	7	7	7	7	7	11	4	3	6	9	171	Kanagawa
Niigata			4		2				1	1	1	1	3	1	2		1	2	1		2			1	23	Niigata
Toyama	1									1		1		2	1		1			1	1	1	3	13	Toyama	
Ishikawa			1												2								1		4	Ishikawa
Fukui		1																							1	Fukui
Yamanashi					1							1												1	3	Yamanashi
Nagano					1												2			1	1			1	6	Nagano
Gifu			1		1																	2	1		5	Gifu
Shizuoka	1	1									3	1											1		7	Shizuoka
Aichi	3	2			1			1				2	5	7	3	2	4	3		1	1	4	5	4	48	Aichi
Mie	1								1							2			1						5	Mie

unclassifiable			1																					1	unclassifiable
total		1	2		1	3	2	1	3	1	1		5			2	2	2	2			2	1	31	total

Causal agents (large) of fatal accidents in city water service in 1999-2021

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (L) agents	
machine																										machine
crane, conveying machine									1																1	crane, conveying machine
other equipment		1								1													1	1	4	other equipment
temporary buildings, establishments			1		1		2		1							1	1	1	2				1		11	temporary buildings, establishments
substance, material						2											1								3	substance, material
load																										load
environment						1		1	1		1		5			1		1							11	environment
others			1																						1	others
total		1	2		1	3	2	1	3	1	1		5			2	2	2	2			2	1	31	total	

Causal agents (middle) of fatal accidents in city water service in 1999-2021

																									agent
no causal agent																									no causal agent
unclassifiable			1																					1	unclassifiable
total		1	2		1	3	2	1	3	1	1		5			2	2	2	2			2	1	31	total

Causal agents (small) of fatal accidents in city water service in 1999-2021

Causal (S) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (S) agents		
engine																										engine	
power transmission mechanism																											power transmission mechanism
circular sawing machine																											circular sawing machine
band sawing machine																											band sawing machine
wood planer machine																											wood planer machine
hollow chisel mortiser, wood borer																											hollow chisel mortiser, wood borer
chamfering machine, router, woodworking																											chamfering machine, router, woodworking

shearing machine																								shearing machine
other metal manufacturing machines																								other metal manufacturing machines
centrifugal machine																								centrifugal machine
mixer, grinder																								mixer, grinder
roll machine (except printingroll machine)																								roll machine (except printingroll machine)
injection molding machine																								injection molding machine
food manufacturing machine																								food manufacturing machine
printing machine																								printing machine
industrial robot																								industrial robot
other general power machines																								other general power machines
felling machine																								felling machine
mobile logging machine																								mobile logging machine
skyline yarding machine																								skyline yarding machine
other mobile silviculture machine																								other mobile silviculture machine

buildings, establishments																								buildings, establishments
explosive substance																								explosive substance
inflammable substance																								inflammable substance
inflammable gas																								inflammable gas
harmful substance						2									1								3	harmful substance
radiation																								radiation
other hazards, harmful substances																								other hazards, harmful substances
metal material																								metal material
lumber, bamboo																								lumber, bamboo
stone, sand, substance																								stone, sand, substance
other materials																								other materials
load																								load
machine/equipment as load																								machine/equipment as load
natural ground, rock																								natural ground, rock
standing tree																								standing tree
water						1		1	1		1		5										9	water
abnormal environment																								abnormal environment

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Workers scale	
9 workers or less																1		1						1	3	9 workers or less
10-29			1			1	2	1	1		1		2				1		2						12	10-29
30-49			1										2			1		1							5	30-49
50-99					1	2			2								1								6	50-99
100-299										1			1										1		3	100-299
300 workers or more		1																					1		2	300 workers or more
total		1	2		1	3	2	1	3	1	1		5			2	2	2	2				2	1	31	total

Month of fatal accidents in city water service in 1999-2021

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Month	
January											1											1		2	January	
February						1			1										1						3	February
March								1					3				1								5	March
April							1									1	1								3	April
May					1																				1	May
June											1														1	June
July																										July
August						2										1							1		4	August
September									1				2					1							4	September
October							1															1			2	October

November	1	2															1							4	November	
December								1										1							2	December
total	1	2		1	3	2	1	3	1	1		5			2	2	2	2				2	1	31	total	

Prefecture of fatal accidents in city water service in 1999-2021

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Prefecture	
Hokkaido					1												1							2	Hokkaido	
Aomori																										Aomori
Iwate							1					1													2	Iwate
Miyagi												4													4	Miyagi
Akita																1									1	Akita
Yamagata																										Yamagata
Fukushima																										Fukushima
Ibaraki																										Ibaraki
Tochigi																										Tochigi
Gunma																										Gunma
Saitama						1																			1	Saitama
Chiba								1							1										2	Chiba
Tokyo									1							1									2	Tokyo
Kanagawa																										Kanagawa
Niigata																										Niigata
Toyama																							1		1	Toyama

Fukuoka																								Fukuoka	
Saga																								Saga	
Nagasaki																								Nagasaki	
Kumamoto																								Kumamoto	
Oita																								Oita	
Miyazaki																								Miyazaki	
Kagoshima															1								1	Kagoshima	
Okinawa									1														1	Okinawa	
total		1	2		1	3	2	1	3	1	1		5			2	2	2	2			2	1	31	total

Data sources: <https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm> (MHLW, Japan)

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