

Fatal and non-fatal accidents in sand collapse prevention civil engineering work in Japan in 1999-2021

sand collapse prevention civil engineering work industry Code No.030108

Type of accidents in sand collapse prevention civil engineering work 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	117	117	93	82	67	60	72	57	51	53	44	32	47	38	40	44	24	21	19	32	29	28	31	1,198	fall from height	
falling to same level	44	30	36	19	29	18	18	11	13	17	11	16	7	11	16	15	7	7	8	6	13	6	7	365	falling to same level	
crash	15	20	10	11	5	10	11	9	6	4	4	6	3	1	5	3	1	1	3	7	1	4	3	143	crash	
struck by flying or falling object	43	51	35	31	24	28	21	21	15	14	13	13	18	20	16	13	10	7	11	7	7	7	10	435	struck by flying or falling object	
collapse	20	17	15	18	21	10	13	6	7	5	4	5	4	1	4	1	5	2	1	1	4	6	4	174	collapse	
crashed by	29	23	20	23	20	15	13	12	29	7	10	9	9	7	17	8	7	11	5	11	8	9	8	310	crashed by	
caught in/between	51	33	26	33	31	21	19	18	18	19	14	12	12	18	11	13	9	6	15	10	12	7	9	417	caught in/between	
cut	12	10	10	3	17	8	6	4	5	5	7	4	4	3	4	7	2	3	4	4	4	5	1	132	cut	
injury to the sole of the foot	1	1	2		1		1			2			1										1	10	injury to the sole of the foot	
drown																										drown
contact to high/low-temperature	2	1	1		2	1				1		1	2		1	3			1	1	1	1	1	1	20	contact to high/low-temperature

engine																								engine	
power transmission mechanism																			1					1	power transmission mechanism
circular sawing machine			3		3		2		3	1	1		2	1		2			1		1			20	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			3		8		3		2	3	1	1		1	2		2	2		2	1			31	chain saw
other woodworking machines								1		1										1				3	other woodworking machines
leveling, transporting or loading machine			5		3		3	3	8	4		4	1	3	2	1	3	3	1	1	4		1	50	leveling, transporting or loading machine
excavating machine			22		14		15	15	6	8	3	5	10	6	10	12	5	2	3	7	8	8	4	163	excavating machine
foundation work machine					1		1			1				2			1					1	1	8	foundation work machine

machine																									machine
food manufacturing machine																									food manufacturing machine
printing machine																									printing machine
industrial robot																									industrial robot
other general power machines			7		5		5	2	3	1	2	1	2	1	4	1	3		1	2	1	3	1	45	other general power machines
felling machine																				1		1		2	felling machine
mobile logging machine																									mobile logging machine
skyline yarding machine																									skyline yarding machine
other mobile silviculture machine																									other mobile silviculture machine
crane					8		2		2	3		2		2	4	1			1		1	1		27	crane
mobile crane			2		10		6	6		6	10	2	4	2	3	2	2	8	2	2	4	1	3	75	mobile crane
derrick crane																									derrick crane
elevator, lift																									elevator, lift
cargo lifting appliance																									cargo lifting appliance
gondola																									gondola
lumberyard equipment, logging cableway							1	1	1			1		1										5	lumberyard equipment, logging cableway

facilities							2	3					1		1		2		2	1		1	13	facilities	
scaffolding			23		9		11	6	4	7	7	5	4	3	5	9	3	4	1	4	3	1		109	scaffolding
timbering			6		3		2	2	2	3	1	1	1							1				22	timbering
stairs, landing stage			3		5		2	1	3	3	1	1	1	1	4	3	1			1	2	1	1	34	stairs, landing stage
opening											1			1			1			1				4	opening
roof, beam, haze, crossbeam, principal rafter								3		1		1					1	1						7	roof, beam, haze, crossbeam, principal rafter
working platform, boot board			7		7		2	4	1	6	3	2	1			4		1	1			1	3	43	working platform, boot board
passage			12		7		3	4	2	3	4	7	2	1	6	2	2	4	6	4	5	3	2	79	passage
building, establishment			24		21		14	11	13	6	9	15	7	8	4	6	6	3	6	6	7	7	5	178	building, establishment
other temporary buildings, establishments			3		3		1	6	3	4	1	5	6	4	7	4	1	2	3		1	1	4	59	other temporary buildings, establishments
explosive substance																									explosive substance
inflammable substance								1											1					2	inflammable substance
inflammable gas																									inflammable gas
harmful substance			1								1			1									2	5	harmful substance
radiation																									radiation
other hazards, harmful substances			1						1			1			1									4	other hazards, harmful substances

metal material			12		11		6	5	4	7	2	7	2	6	2	1	1	1	2	2	3	2	2	78	metal material
lumber, bamboo			5		2		5	2	4	3	1	3	4	3	3			1		3		2	3	44	lumber, bamboo
stone, sand, substance			9		3		6	3	1	2	4	4	2		2	3	2		1	1	2			45	stone, sand, substance
other materials			4		3		1	3	2	4	1		5	5		2		1	2	1	1	1	2	38	other materials
load			2		2		3	2	2	4	4		1	1	1	2	1		2	1	2	1		31	load
machine/equipment as load							1			1								1					1	4	machine/equipment as load
natural ground, rock			44		45		34	25	28	24	17	12	23	22	18	17	10	5	7	12	11	17	15	386	natural ground, rock
standing tree			10		8		11	6	11	5	7	1	11	6	8	7	2	6	5	5	1	3	7	120	standing tree
water			1								1	1		1					1					5	water
abnormal environment																									abnormal environment
high/cold temperature environment			1					1	1		1	1		1	3				1	1		1	1	13	high/cold temperature environment
other environments			4		2		3	1	3			1	1	1	3	2	2		4	2	1		1	31	other environments
other causal agent										1	1		1									1	5	9	other causal agent
no causal agent					1		2	1	1			1			1		2		1	1	2		1	14	no causal agent
unclassifiable									1					1			1							3	unclassifiable
total			261		226		185	148	153	135	120	106	115	109	122	111	71	65	73	84	84	76	90	2,334	total

Workers age of fatal and non-fatal accidents in sand collapse prevention civil engineering work 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	8	7	5	4	3	3	1		1			5		1	2	3	2		1		1		2	49	19 years old or less
20-29	26	29	30	30	19	12	19	17	14	9	10	6	8	9	5	10	6	6	6	6	4	7	7	295	20-29
30-39	33	25	28	21	34	28	23	28	14	21	16	12	20	23	18	10	12	5	9	9	6	10	18	423	30-39
40-49	51	47	44	27	39	37	22	16	17	22	14	17	30	15	19	21	12	14	14	12	14	15	19	538	40-49
50-59	106	87	80	71	73	53	71	56	57	42	37	32	26	28	34	28	19	20	13	19	16	20	16	1,004	50-59
60 years old or more	121	126	74	83	58	48	49	31	50	41	43	34	31	33	44	39	20	20	30	38	43	24	28	1,108	60 years old or more
total	345	321	261	236	226	181	185	148	153	135	120	106	115	109	122	111	71	65	73	84	84	76	90	3,417	total

Workers' number of workplace of fatal and non-fatal accidents in sand collapse prevention civil engineering work 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	137	124	108	102	99	87	80	80	68	56	65	60	62	53	51	52	27	27	32	46	43	38	44	1,541	9 workers or less	
10-29	142	143	113	101	81	63	79	47	73	59	47	40	39	47	54	46	32	33	34	30	30	30	38	1,401	10-29	
30-49	46	38	33	23	32	24	17	13	12	16	3	6	6	8	7	10	9	3	6	7	11	5	6	341	30-49	
50-99	13	14	6	7	11	6	5	7		1	5		6		8	2	3	1	1	1		3	1	101	50-99	
100-299	7	2	1	3	3	1	4	1		3			2	1	2	1		1					1	33	100-299	
300 workers or more																										300 workers or more
total	345	321	261	236	226	181	185	148	153	135	120	106	115	109	122	111	71	65	73	84	84	76	90	3,417	total	

Month of fatal and non-fatal accidents in sand collapse prevention civil engineering work 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	38	33	24	17	19	18	10	18	15	14	12	14	11	11	9	8	5	3	5	4	9	4	6	307	January
February	29	31	19	30	24	18	16	16	8	14	11	10	9	8	8	8	7	7	7	6	8	2	8	304	February
March	25	23	29	19	23	21	11	10	19	10	6	7	14	8	12	8	11	5	6	5	4	7	4	287	March
April	26	24	16	12	8	9	15	9	3	6	5	8	4	10	5	4	5	5	3	6	6	5	6	200	April
May	26	19	16	21	16	14	11	10	11	8	10	13	16	8	3	8	5	6	9		7	8	6	251	May
June	21	22	16	12	15	16	16	13	9	7	6	7	9	8	9	5		3	4	6	6	6	8	224	June
July	28	29	27	26	16	15	18	12	9	12	9	6	10	16	18	14	9	3	6	11	6	5	10	315	July
August	23	26	17	17	16	14	13	21	14	6	6	10	8	7	14	9	9	8	8	5	8	7	9	275	August
September	31	29	24	17	23	8	11	10	19	17	13	10	7	7	15	11	3	7	7	14	7	10	5	305	September
October	36	30	26	23	21	22	25	7	13	9	17	8	6	11	12	11	9	10	4	12	7	4	11	334	October
November	41	24	26	23	23	17	24	13	10	16	13	9	13	9	10	17	7	5	9	5	10	8	9	341	November
December	21	31	21	19	22	9	15	9	23	16	12	4	8	6	7	8	1	3	5	10	6	10	8	274	December
total	345	321	261	236	226	181	185	148	153	135	120	106	115	109	122	111	71	65	73	84	84	76	90	3,417	total

Prefecture of fatal and non-fatal accidents in sand collapse prevention civil engineering work 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	17	10	16		13		8	7	4	6	14	6	5	4	4	1	3		4	6	8	3	9	148	Hokkaido
Aomori	3	2	5		3		4	2	4	1	3	1	2	1	1		3	1	1	1	2	2		42	Aomori
Iwate	4	1	6		1		1		3	1	1	1	3	3	1	2			1	4		1	1	35	Iwate

Miyagi	3				1					2	3	1	1		2	3	2				1		1	20	Miyagi
Akita	5	8	5		7		2	1	2	1	1	2			3	1	1					3	1	43	Akita
Yamagata	1	4	2		2					1		1	1		1	2	2						2	19	Yamagata
Fukushima	5	6	1		4		1		2				1	3	1	2						3		29	Fukushima
Ibaraki	2	1	1								1				1		1							7	Ibaraki
Tochigi	3	3	3		2		3	3	1	1	3	2	4	2		1		1			1			33	Tochigi
Gunma	7	12	15		7		5	4	3	4	4	4	2		5	2	4	1	2	2	6	1	6	96	Gunma
Saitama	1				4		2															1	2	10	Saitama
Chiba		3					2	2	1				1			1		1			1			12	Chiba
Tokyo	1		6		3		8	2	2	1	2		1	2	2	3	4	3	5		1	1	2	49	Tokyo
Kanagawa	10	5	5		12		7		1	1	4	2	4	2	1	2	3		2			3	1	65	Kanagawa
Niigata	12	10	7		7		8	13	4	8	3	3	1	2	2	6	1	4	1	2	2		2	98	Niigata
Toyama	13	7	5		6		4	1	6	1	2	2	2	6	4	1			3	2	1		5	71	Toyama
Ishikawa	3	1	4		2		3	1	3	5	3	2	2		1	2	1					2	3	38	Ishikawa
Fukui	21	17	7		11		8	7	4	4	3	2	1	2	2	2		1		1	3		2	98	Fukui
Yamanashi	6	8	7		6		4	5	6	11	4	1	6		5	3	3	2	3	2	2	4		88	Yamanashi
Nagano	19	18	14		10		8	8	15	5	6	3	4	5	8	4	5		6	4	3	3	8	156	Nagano
Gifu	25	27	10		11		5	7	5	6	2	2	6	6	5	2	5		2		1	2	4	133	Gifu
Shizuoka	7	8	6		7		5	5	8	4	7	2	4	3	4	5	6	4	9	4	2	2	4	106	Shizuoka
Aichi	9	8	4		4		5	2	2	2	3	2	1		1	2		1			1	1		48	Aichi
Mie	12	13	2		4		5	5	4	4	2	1	1	2	1	1		1	1		3	1	1	64	Mie
Shiga	2	4	2		1		1	2		1	3	1			1					1	1		1	21	Shiga
Kyoto	5	1	1				1	2	3				1	1			1	1	1			2	3	23	Kyoto

Osaka	2					1		1		1				1				1	1				8	Osaka	
Hyogo	2	9	7		8		8	10	6	7	3	4	2	3	6	4		3		2	5	1	2	92	Hyogo
Nara	7	7	1		5		1	2	3		3	4		1	4	3		1			1	2		45	Nara
Wakayama	8	6	12		4		2	1		2		4	5	5	4	2			1	1		1		58	Wakayama
Tottori	1	1	4				1	2	4	3	3	1	2	3		3	1	1	1				3	34	Tottori
Shimane	7	6	4		3		1			1		1	3	6	4	4		1	1	1	1		1	45	Shimane
Okayama	8	8	5		6		3	2		2		1	1	1	2	1			3	1	3	2	2	51	Okayama
Hiroshima	13	11	11		8		6	5	1	3	3	3	1	1	1	2		6	2	4	6	7	1	95	Hiroshima
Yamaguchi	2	5	6		2		4	2	2	5	2	3	7	1	1	1		3		2	2	2	1	53	Yamaguchi
Tokushima	6	13	17		10		10	13	9	7	3	5	1	6	2	6	3	2	1	3	1	1		119	Tokushima
Kagawa	1	1	2				4			1			1	1	1	2	1		1		1		1	18	Kagawa
Ehime	13	12	9		9		9	3	4	4	3	3	6	11	7	4	3	5	6	10	4	6		131	Ehime
Kochi	20	24	13		5		5	6	7	7	4	8	3	4	4	9	1	5	1	4	4	11	6	151	Kochi
Fukuoka	6	7	3		3		4	6	4	3	5	6	2	1	5	5	4	1	3	6	5		4	83	Fukuoka
Saga	1	1	2				1				1	1	1		3		1			3		1		16	Saga
Nagasaki	7	1	2		3		2	2	1		1	4	1	1		5	1		2	2		2		37	Nagasaki
Kumamoto	4	8	7		4		6	1	2	2	3	5	4	4	3	2	2	4	2	1	5		1	70	Kumamoto
Oita	18	6	6		6		1	4	9	6	3	4	4	5	8	4	3	2	1	7	4		5	106	Oita
Miyazaki	5	4	5		2		1		2		1	1	2	2	1	1		1				2		30	Miyazaki
Kagoshima	18	14	11		20		14	10	15	12	7	7	15	7	8	5	6	9	6	7	3	3	5	202	Kagoshima
Okinawa							1							2	1									4	Okinawa
total	345	321	261		226		185	148	153	135	120	106	115	109	122	111	71	65	73	84	84	76	90	3,000	total

injury to the sole of the foot																								injury to the sole of the foot	
drown																								drown	
contact to high/low-temperature																								contact to high/low-temperature	
contact to harmful substance																								contact to harmful substance	
electric shock																								electric shock	
explosion																								explosion	
burst																								burst	
fire																								fire	
traffic accident (public road)			1						1		1					1						2	1	7	traffic accident (public road)
traffic accident (others)																								traffic accident (others)	
reaction to motion/improper motion																								reaction to motion/improper motion	
others																1								1	others
unclassifiable																								unclassifiable	
total	18	23	14	13	11	12	11	5	18	10	9	8	7	6	9	4	2	7	1	4	3	4	4	203	total

kiln, caldron																								kiln, caldron
electric equipment																								electric equipment
human power machine, tools																								human power machine, tools
tools		2					1	2					1							1		2	9	tools
other equipments, facilities																								other equipments, facilities
temporary buildings, establishments	5	5	3	1	3	2	3	1	3	4	1	3	2		2								40	temporary buildings, establishments
hazards, harmful substances																								hazards, harmful substances
materials		1						1						1									3	materials
load																								load
natural environment	4	9	4	7	3	3	1	1	7	1	6	1	4	2	5	1	1	4	1	3	1		69	natural environment
other causal agent																								other causal agent
no causal agent																	1						1	no causal agent
unclassifiable														1									1	unclassifiable

pressure vessel																										pressure vessel
other pressure vessels																										other pressure vessels
chemical facilities																										chemical facilities
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																										transmission
electric power facilities																										electric power facilities
other electrical equipment																										other electrical equipment
human power cranes																										human power cranes
human power hauling equipment																										human power hauling equipment
human power machine																										human power machine

no causal agent																	1									1	no causal agent
unclassifiable														1												1	unclassifiable
total	18	23	14	13	11	12	11	5	18	10	9	8	7	6	9	4	2	7	1	4	3	4	4	203	total		

Workers age of fatal accidents in sand collapse prevention civil engineering work 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	19 years old or less
20-29		1			2		1		1												1			6	20-29
30-39	2	1	2	2	2	3	4		2	1	2		1	2										24	30-39
40-49	5	6	1	1	2			1	2	3			3		2	1		2				2		31	40-49
50-59	5	5	4	4	3	8	1	3	8	1	1	3	2	1	3	2	2	2		3	1	1	1	64	50-59
60 years old or more	6	10	7	6	2	1	5	1	5	5	6	4	1	3	4	1		3	1	1	1	1	3	77	60 years old or more
total	18	23	14	13	11	12	11	5	18	10	9	8	7	6	9	4	2	7	1	4	3	4	4	203	total

Workers' number of workplace of fatal accidents in sand collapse prevention civil engineering work 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	4	7	5	6	6	4	6	5	6	2	5	4	4	5	3	2		2	1	2		3	1	83	9 workers or less
10-29	11	8	6	3	2	7	2		10	7	4	3	1	1	5	2		4		1	2	1	1	81	10-29
30-49	1	7	2	3	2	1	3		1			1			1			1		1			2	26	30-49
50-99	1	1	1	1									2				2				1			9	50-99

100-299	1				1				1	1														4	100-299	
300 workers or more																										300 workers or more
total	18	23	14	13	11	12	11	5	18	10	9	8	7	6	9	4	2	7	1	4	3	4	4	203	total	

Month of fatal accidents in sand collapse prevention civil engineering work 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	2	3	1	2	1				2	1	1		2	1										16	January	
February	1	1	1			3	1			1	1	1	1	1				2			1			15	February	
March		5			1		1	1	3	2			2		1	1								17	March	
April	5		2	1			1			1					1		1	1				1	1	15	April	
May		3	4			1			1		1			1		1								12	May	
June	1	1	1		1	2	1		1						1			1			1		1	12	June	
July	2	1	3	4		1	1		1		2	1		1			1	2						20	July	
August	1	2		2	1	1		1	3			1			3	1		1	1					18	August	
September	1	2	1	1		1	2	1	3	1	1	4	1							1		1	1	22	September	
October		2	1	1	4	2			1	1	3	1	1	1		1					2	1		22	October	
November	3	2		1	3	1	1	2	2	2				1	3							1		22	November	
December	2	1		1			3		1	1											1		1	1	12	December
total	18	23	14	13	11	12	11	5	18	10	9	8	7	6	9	4	2	7	1	4	3	4	4	203	total	

Prefecture of fatal accidents in sand collapse prevention civil engineering work in 1999-2021

Shizuoka	2	1		1		1			2		1			2			1		1				12	Shizuoka
Aichi	1			1	1						1												4	Aichi
Mie	1	1															1						3	Mie
Shiga																								Shiga
Kyoto																								Kyoto
Osaka																								Osaka
Hyogo			1							1	2		1						1				6	Hyogo
Nara	1															1							2	Nara
Wakayama																								Wakayama
Tottori																								Tottori
Shimane												1	1									1	3	Shimane
Okayama		1						1															2	Okayama
Hiroshima		3	1															1					5	Hiroshima
Yamaguchi			1			1					1					2							5	Yamaguchi
Tokushima		1	1		1			1			1												5	Tokushima
Kagawa						1																	1	Kagawa
Ehime						1	1		1	1		1	1				1						7	Ehime
Kochi	3	3																					6	Kochi
Fukuoka				3				1		1	1			1		1							8	Fukuoka
Saga	1	1												1									3	Saga
Nagasaki					1						1		1										3	Nagasaki
Kumamoto					2					1			1		1								5	Kumamoto
Oita				1			1					1	1									1	5	Oita

Miyazaki									1															1	Miyazaki
Kagoshima	1					1	1		3	1								1		1				9	Kagoshima
Okinawa																									Okinawa
total	18	23	14	13	11	12	11	5	18	10	9	8	7	6	9	4	2	7	1	4	3	4	4	203	total

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

Return to https://www.jisha.or.jp/english/statistics/2021e_industry.html