Fatal and non-fatal accidents in river civil engineering work in Japan in 1999-2021

river civil engineering work industry Code No.030107

Type of accidents in river 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	115	111	101	75	62	65	75	56	67	44	40	50	44	40	58	55	50	44	36	47	45	53	56	1,389	fall from height
falling to same level	63	51	44	35	33	25	35	31	22	21	21	14	17	26	25	25	25	18	24	14	20	29	30	648	falling to same
crash	29	9	19	12	12	9	9	8	6	7	9	4	8	10	9	10	9	5	6	7	5	4	13	219	crash
struck by flying or falling object	69	72	48	46	40	30	43	40	41	29	31	23	22	25	21	30	18	16	18	23	21	19	24	749	struck by flying or falling object
collapse	31	15	28	19	10	16	20	21	12	14	14	11	9	9	6	11	10	12	6	8	7	12	13	314	collapse
crashed by	57	62	40	33	36	38	41	28	29	23	17	26	18	23	22	24	24	10	13	17	20	21	23	645	crashed by
caught in/between	87	88	88	57	67	55	46	34	29	42	39	40	35	48	43	44	42	18	40	24	29	33	32	1,060	caught in/between
cut	31	24	19	13	14	11	12	15	7	13	7	12	8	5	13	11	15	7	8	10	13	18	13	299	cut
injury to the sole of the foot	1	2	1	1	1			1		1	1		1			1	1		1	1			1	15	injury to the sole of the foot
drown	1		1	2	1	2		2	1	2	1	1	3	1		3	1	1	2	1	1	1	2	30	drown
contact to high/low- temperature	1	2	3	4	2	4	1	2	4		1	3	4	1	1	2	2		3	6	5	3	5	59	contact to high/low- temperature

contact to harmful																									contact to
substance	3		1	1				1	1		1				1		1		1	4			1	16	harmful
substance																									substance
electric shock			1	2			1		1			1								1				7	electric shock
explosion										1														1	explosion
burst				1													1			1				3	burst
fire				1															1					2	fire
traffic accident (public	27	14	8	19	16	6	10	11	10		12	11	2	4	7	3	4	3	9	8	4	10	5	213	traffic accident
road)	27	14	0	19	10	0	10	11	10	9	12	11	3	4	,	3	4	3	9	0	4	10	5	213	(public road)
traffic accident	2		1	1										2							1	2		9	traffic accident
(others)			ļ ·	•																				9	(others)
reaction to																									reaction to
motion/improper	20	15	22	12	9	4	10	7	12	8	7	7	8	4	3	6	4	9	10	9	12	8	5	211	motion/improper
motion																									motion
others	3	1	1	1			2				3	1		2			2	3	2	1	1	1	16	40	others
unclassifiable		2									1				1							1		5	unclassifiable
total	540	468	426	335	303	265	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,934	total

Causal agents (large) of fatal and non-fatal accidents in river civil engineering work 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		Causal (L)
eausui (2) ageints																									agents
machine	118	112	90	76	69	60	72	61	48	50	51	56	42	59	53	57	52	32	34	39	48	62	42	1,383	machine
crane, conveying																									crane,

machine	78	78	58	54	63	48	41	34	38	43	37	41	34	42	40	42	38	20	34	33	29	41	42	1,008	conveying
macrime																									machine
ath or a guinmont	49	36	38	31	31	21	30	29	25	15	21	23	23	17	26	21	21	14	16	10	20	21	29	567	other
other equipment	49	30	36	31	31	21	30	29	23	13	21	23	23	17	20	21	21	14		10	20	21	29		equipment
tompovom buildings																									temporary
temporary buildings, establishments	119	88	94	70	50	48	60	67	50	46	39	29	37	30	48	44	39	32	41	39	34	33	53	1,190	buildings,
establistifferits																									establishments
substance, material	82	84	80	49	43	40	43	32	31	29	29	16	19	21	14	30	25	14	17	18	16	17	22	771	substance,
substance, material	02	04	80	49	43	40	43	32	31	29	29		19	21	14	30		14		10	10		22		material
load	16	7	3	12	8	10	6	5	5	3	4	6	1	6	5	2	4	2	8	7	7	4	8	139	load
environment	68	56	57	36	36	37	50	26	39	26	18	32	18	24	22	28	26	30	24	33	24	30	28	768	environment
others	10	7	6	7	3	1	3	3	6	2	6	1	6	1	2	1	4	2	6	3	6	7	15	108	others
total	540	468	426	335	303	265	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,934	total

Causal agents (middle) of fatal and non-fatal accidents in river civil engineering work in 1999-2021

Causal (M) 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 (M) agents
engine	2										1				1									4	engine
power transmission mechanism	1					1		1							2	1		1						7	power transmission mechanism
woodworking machine	16	16	10	11	11	6	5	12	3	8	5	8	5	6	11	6	6	3	4	6	4	14	4	180	woodworking machine

construction machine	80	87	72	55	49	46	59	39	38	33	39	40	27	47	37	41	35	22	24	26	35	35	31	997	construction
	<u> </u>									<u> </u>		<u> </u>						<u> </u>		<u> </u>			<u> </u>		machine
metal manufacturing	5	4	2	3	2		1	2	1	3		2	1			3	1		1	1		2	1	35	metal manufacturing
machine																									machine
general machine	14	5	6	7	7	7	7	7	6	6	6	6	9	6	2	6	10	5	5	6	8	9	5	155	general
general macinile																									machine
mobile silviculture																									mobile
machine																		1			1	2	1	5	silviculture machine
crane	17	32	23	12	24	19	14	12	8	18	9	12	13	15	11	19	14	11	15	10	9	14	17	348	crane
																									conveying
conveying machine	39	37	31	24	25	23	21	12	21	16	17	18	16	23	26	20	22	8	13	15	17	19	19	482	machine
vehicle	22	9	4	18	14	6	6	10	9	9	11	11	5	4	3	3	2	1	6	8	3	8	6	178	vehicle
pressure vessel				2																				2	pressure vessel
chemical facilities																									chemical
																									facilities
welding equipment							1									1								2	welding
																									equipment
kiln, caldron																									kiln, caldron
electric equipment	2					1				1											1			5	electric
																									equipment
human power machine,	14	10	7	12	6	6	4	7	3	3	4	4	2	3	1	4	6		6	4	3	2	6	117	human power
tools																						<u> </u>			machine, tools
																									1

tools	31	22	27	16	23	13	21	20	18	11	16	17	19	13	22	16	14	13	10	6	16	18	19	401	tools
other equipments,	2	4	4	1	2	1	4	2	4		1	2	2	1	3		1	1				1	4	40	other equipments, facilities
temporary buildings, establishments	119	88	94	70	50	48	60	67	50	46	39	29	37	30	48	44	39	32	41	39	34	33	53		temporary buildings, establishments
hazards, harmful substances	3	2	1	2		1				1	1						1		3	2			1	18	hazards, harmful substances
materials	79	82	79	47	43	39	43	32	31	28	28	16	19	21	14	30	24	14	14	16	16	17	21	753	materials
load	16	7	3	12	8	10	6	5	5	3	4	6	1	6	5	2	4	2	8	7	7	4	8	139	load
natural environment	68	56	57	36	36	37	50	26	39	26	18	32	18	24	22	28	26	30	24	33	24	30	28	768	natural environment
other causal agent	1	1	2	1				1					3	1		1	2		3			2	10	28	other causal agent
no causal agent	9	2	4	5	2	1	3	1	6	2	5	1	3		2		2	2	3	3	6	5	5	72	no causal agent
unclassifiable		4		1	1			1			1													8	unclassifiable
total	540	468	426	335	303	265	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,934	total

Causal agents (small) of fatal and non-fatal accidents in river civil engineering work 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								1				1									2	engine
power transmission mechanism					1							2	1		1						5	power transmission mechanism
circular sawing		7	8	5	7	3	5	4	5	2	1	6	1	3	2	1	2	2	9		73	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					1																1	chamfering machine, router, woodworking milling machine
chain saw		2	2		3		2		3	3	5	1	5	3	1	1	4	1	3	2	41	chain saw
other woodworking machines		1	1		1		1	1				4				2		1	2	2	16	other woodworking machines
leveling, transporting or loading machine		6	6	13	12	9	4	5	9	3	5	8	2	5	6	4	2	7	7	3	116	leveling, transporting or loading machine
excavating machine		47	32	33	13	22	22	24	23	21	31	22	28	17	9	13	18	17	25	21	438	excavating machine
foundation work		8	2	5	6	3	1		1		1	1	4	5		1	3	1		1	43	foundation work

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hardening machine		4	2	1	3	2		1	3		1		1	3	2			5		2	30	hardening machine
demolition machine		3	1	6		1					2	1	2	3	1	3		2		2	27	demolition machine
vehicle for high lift work						1											1	1			3	vehicle for high lift work
other construction machines		4	6	1	5		6	9	4	3	7	5	4	2	4	3	2	2	3	2	72	other construction machines
lathe																						lathe
drill press, milling machine																	1				1	drill press, milling machine
grinding machine, buffing machine		2	1	1	2	1	2		1	1			3	1		1			1	1	18	grinding machine, buffing machine
power press																						power press
forging pressure																						forging pressure
shearing machine																						shearing machine
other metal manufacturing machines			1				1		1										1		4	other metal manufacturing machines
centrifugal machine																						centrifugal machine
mixer, grinder					1	1		1											1		4	mixer, grinder
roll machine (except printingroll machine)																						roll machine (except printingroll machine)
injection molding																						injection molding

machine																						machine
food manufacturing																						food manufacturing
printing machine																						printing machine
industrial robot																						industrial robot
other general power machines		6	7	7	6	5	6	5	6	9	6	2	6	10	5	5	6	8	8	5	118	other general power machines
felling machine															1				1	1	3	felling machine
mobile logging machine																			1		1	mobile logging machine
skyline yarding machine																						skyline yarding machine
other mobile silviculture machine																		1			1	other mobile silviculture machine
crane		3	1	1	2		2	3	1	1	2		1	1			1	2		1	22	crane
mobile crane		20	22	13	9	8	15	6	10	12	13	11	18	12	11	13	9	7	14	15	238	mobile crane
derrick crane																						derrick crane
elevator, lift																						elevator, lift
cargo lifting appliance																						cargo lifting appliance
gondola			1																		1	gondola
lumberyard equipment, logging					1																1	lumberyard equipment, logging
cableway																						cableway

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simple skyline yarding equipment																								simple skyline yarding equipment
other powered									1		1					1		2				1	6	other powered
truck		23		19		17	10	16	14	10	16	14	18	20	18	19	7	9	15	16	16	17	294	truck
forklift				1																	1		2	forklift
railway equipment		1						1				1											3	railway equipment
conveyor		1				1					1		2								1	1	7	conveyor
loader				1					1	1							1	1					5	loader
straddle carrier																								straddle carrier
rough terrain hauler		5		3		1	2	4	1	4	1		2	1	1	2		2		1	1	1	32	rough terrain hauler
other powered conveying machines		1		1		2				2		1	1	5	1	1		1					16	other powered conveying machines
cars, bus,		3		12		6	9	9	8	9	10	4	3	3	3	2	1	6	7	2	6	4	107	cars, bus,
railway vehicle																					1		1	railway vehicle
other vehicles		1		2			1		1	2	1	1	1						1	1	1	2	15	other vehicles
boiler																								boiler
pressure vessel																								pressure vessel
other pressure vessels																								other pressure vessels
chemical facilities																								chemical facilities
gas welding						1																	1	gas welding

equipment																						equipment
arc welding equipment													1								1	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
other electrical equipment							1											1			2	other electrical equipment
human power cranes							1														1	human power cranes
human power hauling equipment			1						1		1			1		1		1		1	7	human power hauling equipment
human power machine									1											1	2	human power machine
hand tool		7	5	4	7	3	2	4	2	2	2	1	4	5		5	4	2	2	4	65	hand tool
ladder		15	8	9	10	4	6	3	6	5	6	13	10	8	5	5	3	6	10	8	140	ladder
slinging tool		4	7	8	8	9	2	8	8	10	5	6	5	4	5	2	3	6	6	4	110	slinging tool
other tools		8	8	4	2	5	3	5	3	4	2	3	1	2	3	3		4	2	7	69	other tools
other equipment,																						other equipment,

facilities		4	2	4	2	4		1	2	2	1	3		1	1				1	4	32	facilities
scaffolding		11	6	6	7	8	2	4	3	2	4	3	2	2	3	1	1	3	1		69	scaffolding
timbering		6	3	3	5	1	2	2	2	2		1	2	2	1	1	1		1	1	36	timbering
stairs, landing stage		3		2	3	3	2	1	2	1	3		6	3	3	1	1	5	1	3	43	stairs, landing stage
opening		5				2				1		1	1		1	2	3		2	3	21	opening
roof, beam, haze, crossbeam, principal rafter		2		1		1	1												1	1	7	roof, beam, haze, crossbeam, principal rafter
working platform, boot board		3	9	7	7	4	7	7		2	2	6	4	8	2	2	5	3	2	11	91	working platform, boot board
passage		14	8	15	15	8	9	8	7	5	1	6	10	8	6	9	11	6	6	11	163	passage
building, establishment		42	19	17	22	19	17	13	12	13	16	19	13	9	10	15	11	15	11	14	307	building, establishment
other temporary buildings, establishments		8	5	9	8	4	6	4	3	11	4	12	6	7	6	10	6	2	8	9	128	other temporary buildings, establishments
explosive substance																						explosive substance
inflammable substance		1					1									1					3	inflammable substance
inflammable gas																1					1	inflammable gas
harmful substance														1			1				2	harmful substance
radiation																						radiation
other hazards,								1								1	1			1	4	other hazards, harmful substances

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metal material	19		16	16	13	13	11	17	7	11	9	5	10	10	5	4	7	6	8	6	193	metal material
lumber, bamboo	9		3	3	4	3	5	3			3	3	2	1	3		1	3		4	50	lumber, bamboo
stone, sand, substance	25		14	17	8	7	6	4	3	7	3	2	12	9	2	7	5	3	6	6	146	stone, sand, substance
other materials	26		10	7	7	8	6	4	6	1	6	4	6	4	4	3	3	4	3	5	117	other materials
load	2		6	4	4	5	2	3	6	1	6	4	2	3	2	8	7	4	3	8	80	load
machine/equipment as load	1		2	2	1		1	1				1		1				3	1		14	machine/equipment as load
natural ground, rock	33		22	36	17	30	17	11	17	8	14	15	16	15	13	13	12	10	20	14	333	natural ground, rock
standing tree	9		7	9	4	4	4	4	8	1	3	2	6	5	8	1	8	4	5	4	96	standing tree
water	1		2			1	1	1	1	3	1		3		2	2	1	1	1	1	22	water
abnormal environment			1																		1	abnormal environment
high/cold temperature environment	3		1		2	3			3	4	1	1	1	2		2	6	4	2	4	39	high/cold temperature environment
other environments	11		3	5	3	1	4	2	3	2	5	4	2	4	7	6	6	5	2	5	80	other environments
other causal agent	2				1					3	1		1	2		3			2	10	25	other causal agent
no causal agent	4		2	3	1	6	2	5	1	3		2		2	2	3	3	6	5	5	55	no causal agent
unclassifiable			1		1			1													3	unclassifiable
total	426		303	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	4,326	total

Workers age of fatal and non-fatal accidents in river 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	13	8	9	8	3	7	5	2	4	1	2	1	2	3	4	3	4	3	1	2	2	2	1	90	19 years old or less
20-29	50	52	75	46	35	34	33	26	24	12	22	24	15	15	13	17	11	10	14	23	15	16	24	606	20-29
30-39	46	44	38	34	37	37	34	42	35	31	29	30	29	26	37	33	23	24	18	19	21	25	34	726	30-39
40-49	102	78	59	50	58	45	45	37	37	41	36	39	34	48	38	38	54	22	40	32	39	29	36	1,037	40-49
50-59	149	140	104	92	97	82	100	88	75	58	61	41	52	51	58	54	48	31	47	39	29	45	55	1,596	50-59
60 years old or	180	146	141	105	73	60	88	62	67	71	55	69	48	57	60	80	69	56	60	67	78	98	89	1,879	60 years old or
more			171					02	<u> </u>											07				'	more
total	540	468	426	335	303	265	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,934	total

Workers' number of workplace of fatal and non-fatal accidents in river 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	232	208	201	156	143	122	171	128	125	118	105	113	89	100	119	107	109	82	96	87	105	85	109	2,910	9 workers or less
10-29	231	195	173	140	134	109	103	102	89	73	79	72	68	75	73	83	73	43	53	62	59	99	97	2,285	10-29
30-49	55	41	31	26	16	24	18	19	19	19	16	16	15	17	9	24	18	15	26	21	12	21	15	493	30-49
50-99	15	19	17	9	10	9	10	7	8	3	4	3	7	7	9	9	7	4	4	11	5	6	8	191	50-99
100-299	7	5	4	4		1	3	1	1	1	1		1	1		2	2	2	1	1	3	4	10	55	100-299
300 workers or																									300 workers or
more																									more
total	540	468	426	335	303	265	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,934	total

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	46	49	44	49	36	40	24	31	27	36	30	31	20	18	28	23	22	15	21	26	20	20	23	679	January
February	66	56	52	61	46	42	47	44	39	32	28	20	14	29	24	26	24	14	29	18	23	23	37	794	February
March	55	76	54	26	45	46	30	38	28	30	28	34	18	27	29	20	31	24	18	21	23	23	22	746	March
April	48	37	40	24	21	16	20	18	20	18	12	14	12	19	15	14	13	8	11	13	14	20	8	435	April
May	41	31	30	19	24	12	31	28	14	14	11	15	10	15	14	22	12	13	7	10	10	12	17	412	May
June	45	35	26	16	10	13	22	11	18	18	6	12	11	15	10	14	12	9	9	11	9	12	13	357	June
July	40	32	23	18	23	19	15	12	22	11	9	10	11	9	12	15	7	11	18	16	7	14	29	383	July
August	36	33	23	21	15	10	18	13	17	8	7	11	21	15	15	13	14	12	13	14	7	20	23	379	August
September	28	19	18	16	13	16	20	10	13	6	17	9	9	7	11	16	14	9	7	15	13	12	14	312	September
October	43	30	34	19	15	12	30	13	11	16	11	11	13	20	16	16	20	8	11	10	18	16	15	408	October
November	48	40	39	30	20	16	29	21	19	11	28	16	16	13	20	26	20	9	14	17	17	18	22	509	November
December	44	30	43	36	35	23	19	18	14	14	18	21	25	13	16	20	20	14	22	11	23	25	16	520	December
total	540	468	426	335	303	265	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,934	total

Prefecture of fatal and non-fatal accidents in river 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	49	30	23		34		23	20	12	19	21	19	8	9	12	16	14	8	15	17	13	20	16	398	Hokkaido
Aomori	8	5	11		2		2	5	1	3	3		8	8		2	2	4	3	2	2	1	2	74	Aomori
lwate	6	15	6		13		8	2	3	2	3	6	4	5	3	9	4	4	10	13	9	7	7	139	lwate

Miyagi	2	7	1	13	4	4	7	5	4	1	6	3	9	7		10	16	6	9	4	9	127	Miyagi
Akita	10		13	3	5	6	1	4	6	9	2	7	7	3	9		3	5	5	5	2	105	Akita
Yamagata	6	6	6	6	5	2	3	3	1	1	1	2	4	2	4	4	2	7	3	6	8	82	Yamagata
Fukushima	15	10	2	6	4		2	6	2	4	2	9	5	5	12	5	3	5	5	7	11	120	Fukushima
Ibaraki	8	5	3	6	5	1	3	1	2		5	5		3	6	3	2	4		1	3	66	Ibaraki
Tochigi	9	10	7	4	2		2	1	2	4	2	6	2	1			1	3		5	4	65	Tochigi
Gunma	16	4	9	7	2	2	1	5	3	3	3		3	2	4	1	2	4	4	3	4	82	Gunma
Saitama	8	6	8	4	6	6	2	6	12	8	9	1	5	11	8	2	7	2	2	5	3	121	Saitama
Chiba	5	8	8	7	3	9	6	5	4	4	1	3	4	4	3		4	4	2	2	1	87	Chiba
Tokyo	9	7	7	7	8	10	7	5	10	6	4	4	5	3	2	4	5	6	3	7	10	129	Tokyo
Kanagawa	9	8	11	3	5	8	3	4	5	5	2	8		3	5	4	2	4	1	2	6	98	Kanagawa
Niigata	24	15	12	9	22	14	6	8	8	4	6	11	4	14	8	5	2	7	3	4	3	189	Niigata
Toyama	7	11	7	4	8	5	5	8	9	6	1	2	6	7	3	3		2	2	3	4	103	Toyama
Ishikawa	2	2	2	7	3	1	1	5	3	2	3		2	1	5	3	1	2	1	1	1	48	Ishikawa
Fukui	6	12	10	7	3	6	3		5	2	8	4	3	1	5	1	2	2	4			84	Fukui
Yamanashi	5	8	8	2	2	1	2	3		3	3	2	4	3	1		1		2	1	1	52	Yamanashi
Nagano	22	15	16	6	9	11	5	11	2	6	2	4	2	4	8	4	7	6	5	11	17	173	Nagano
Gifu	11	23	22	8	9	6	9	6	6	9	5	7	5	5	9	1		4	3	4	5	157	Gifu
Shizuoka	24	18	10	11	7	7	4	6	8	1	5	8	6	8	2	7	7	2	4	7	8	160	Shizuoka
Aichi	12	24	17	5	9	5	8	13	11	6	6	7	4	6	3	5	4	9	5	5	11	175	Aichi
Mie	11	9	10	9	5	5	7		4	5	1	3	7	5	6	1	4	6	5	3	3	109	Mie
Shiga	5	3	6	8		5	3	1	2		2		1	2	1	2	1		1	2	2	47	Shiga
Kyoto	17	6	9	3	8	10	6	3	2	5	1	3	1	6	8	4	3	5	6	3	3	112	Kyoto

Osaka	4	5	10	7	4	3	11	6	3		1	1	2	2	3	1	1	4	2	2	2	74	Osaka
Hyogo	19	21	10	6	19	11	14	8	5	13	5	9	6	3	3	2	5	1	11	2	5	178	Hyogo
Nara	6	5	3	3	1	3	2	1	1	4	3	1	7	3		1	2	4	3	2	1	56	Nara
Wakayama	13	7	9	6	4	3	5	1	6	3	1	10	7	6	9	4	2		3		1	100	Wakayama
Tottori	7	2	3	5	1	3	3		1	2	2	4	2	3	1	2	4		1	3		49	Tottori
Shimane	4	7	8	6	2	2	4	3	1	6	1	1	1	2	4	2		1	2		4	61	Shimane
Okayama	23	23	8	7	10	4	7	1	2	4	2	5	6	7	2			5	3	7	4	130	Okayama
Hiroshima	21	27	15	6	3	14	9	4	3	6	10	5	3	5	2	2	1	3	8	11	8	166	Hiroshima
Yamaguchi	4	11	13	6	6	7	5	2	2	6	6	3	6	5	4	2	5		8	4	8	113	Yamaguchi
Tokushima	10	7	6	5	17	3	6	5	5	5			2	3	5	2	4	1		2	4	92	Tokushima
Kagawa	2	3		1	5	1		1	4	1	2	4	4	2	3	6	2	4	4	1	1	51	Kagawa
Ehime	18	10	19	6	11	6	4	3	3	1	3	4		5	1		3	1	5	4	1	108	Ehime
Kochi	23	18	12	11	13	5	10	4	2	2	4		8	8	6	9	5	2	7	7	6	162	Kochi
Fukuoka	14	14	21	14	13	15	15	9	8	7	15	7	16	10	13	8	8	9	10	17	18	261	Fukuoka
Saga	5	5	5	4	6	5	6	4	3	6	4	3	10	6	7	2	5	4	4	5	4	103	Saga
Nagasaki	8	13	5		4	2		2	3	2	2	3	1	6		1	1	1			2	56	Nagasaki
Kumamoto	11	5	17	3	2	3	9	5	3	7	7	6	1	6	5	5	6	4	3	8	7	123	Kumamoto
Oita	19	4	8	3	9	5	2	7	2	1	1	1	20	8	4	4	2	4	4	3	4	115	Oita
Miyazaki	6	3	2	1	4	3	4	5		2	4	2		1	3	4	5	3	2	4	4	62	Miyazaki
Kagoshima	16	10	8	8	4	8	14	8	10	7	7	9	4	1	1	4	11	4	5	14	10	163	Kagoshima
Okinawa	1	1		1				2				1			1		1				1	9	Okinawa
total	540	468	426	303	305	257	242	214	205	204	180	200	210	225	209	146	180	182	184	215	239	5,334	total

Fatal and non-fatal accidents mean fatal and non-fatal injuries and occupational diseases with work absence of 4 days and more. Data of 2011 year include fatal and non-fatal accidents caused by Great East Japan Earthquake in 2011.

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

Return to <a href="https://www.jisha.or.jp/english/statistics/2021e\_industry.html">https://www.jisha.or.jp/english/statistics/2021e\_industry.html</a>

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Fatal accidents in river civil engineering work in Japan in 1999-2021

river civil engineering work industry Code No.030107

Type of fatal accidents in river 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	7	1	4	3	5	4	5	1	5	1	3	3	1	2	2	2	2	2	2	1	2	2	1	61	fall from height
falling to same level	2					1	1							1		1	1						3	10	falling to same
laming to same level							ľ										ľ								level
crash											2				1									3	crash
struck by flying or	2	1	2	1	1		2	2	1		1	1			1			1		2	2	1		22	struck by flying
falling object	3			I					I		I				I							I			or falling object
collapse	6	1	1			3	1			4	2	2	1	2		1	1	2		3			1	31	collapse
crashed by	4	3	2	1	1	5	3		1	2		1	3	2		1	2	1			3	1	1	37	crashed by
caught in/between	3	5	2	4	5	4	4	2			1	2	3	4	1	3	4	1	2	1		1	1	53	caught
caugiit iii/ betweeii																									in/between
cut																				1	1			2	cut

l <u></u>																									
injury to the sole of the foot																									injury to the sole
drown		1	1	2	1	2		1	1	2	2	1	3		1	1	1	1	1		1		2	25	drown
contact to high/low- temperature			1																						contact to high/low- temperature
contact to harmful substance									1														1		contact to harmful substance
electric shock							1																	1	electric shock
explosion																									explosion
burst										1														1	burst
fire																									fire
traffic accident (public road)	3	4	1	5		1		3	1		2	3				1			2			2		28	traffic accident (public road)
traffic accident (others)				2										1							1	1		5	traffic accident (others)
reaction to motion/improper motion																									reaction to motion/improper motion
others		1															1				1			3	others
unclassifiable																									unclassifiable
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	3 2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (L)
machine	6	8	9	8	5	9	8	2	2	3	4	4	5	4	2	3	3	2	2	2	3	3	2	99	machine
crane, conveying machine	5	7	1	8	4	6	3	4	3		5	5	1	4	2	4	4	2	2	1	3	3	1	78	crane, conveying machine
other equipment	3		1		1		1			1		2	1								1			11	other equipment
temporary buildings, establishments	5		1	1	2		3	1	2		1		1	3		1	3	1	2	1		2	3		temporary buildings, establishments
substance, material	2							1	1	1				1						1			2	9	substance, material
load	1						1																	2	load
environment	6	2	2	1	1	5	1	1	2	5	3	2	3		2	2	1	3	1	3	3		2	51	environment
others																	1				1			2	others
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

Causal agents (middle) of fatal accidents in river civil engineering work in 1999-2021

Causal (M) agents	1000	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2010	2020	2021	total	Causal (M)
causai (ivi) agents	1999	2000	2001	2002	2003	2004	2003	2000	2007	2008	2009	2010	2011	2012	2013	2014	2013	2010	2017	2010	2019	2020	2021	totai	agents

engine																									engine
power transmission mechanism																									power transmission mechanism
woodworking machine																					1			1	woodworking machine
construction machine	6	7	8	8	5	9	7	1	2	3	4	4	3	3	2	3	2	2	2	1	2	3	1	88	construction machine
metal manufacturing machine																									metal manufacturing machine
general machine		1	1				1	1					2	1			1			1			1	10	general machine
mobile silviculture machine																									mobile silviculture machine
crane	1	1			3	3	2								1	2	3	2		1				19	crane
conveying machine	2	4	1	2	1	3	1	1	3		2	2	1	4	1	1	1		1		2	2		35	conveying machine
vehicle	2	2		6				3			3	3				1			1		1	1	1	24	vehicle
pressure vessel																									pressure vessel
chemical facilities																									chemical facilities
welding equipment																									welding equipment

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kiln, caldron																									kiln, caldron
electric equipment																									electric
																									equipment
human power machine,																									human power
tools																									machine, tools
tools	3		1		1		1			1		2	1								1			11	tools
other equipments,																									other
facilities																									equipments,
lucinties																									facilities
temporary buildings,																									temporary
establishments	5		1	1	2		3	1	2		1		1	3		1	3	1	2	1		2	3	33	buildings,
Cstablishinents																									establishments
hazards, harmful																									hazards,
substances									1														1	2	harmful
Substances																									substances
materials	2							1		1				1						1			1	7	materials
load	1						1																	2	load
																								51	natural
natural environment	6	2	2			5		l l	2	5	3	2	3		2	2		3		3	3		2	וכ	environment
ather sausal agent																									other causal
other causal agent																									agent
no causal agent																	1				1			2	no causal
no causal agent																								2	agent
unclassifiable																									unclassifiable
				-												!									

total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total	
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Causal agents (small) of fatal accidents in river civil engineering work 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																					1			1	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																									chain saw
other woodworking																									other woodworking

leveling,																									leveling,
transporting or	2	2		2		3	2		1			2										1		15	transporting or
loading machine																									loading machine
excavating machine	4	5	7	4	1	5	3		1	3	3	2	3	3	2	3	1	1	2	1	2	2		58	excavating machine
foundation work					1		2																	3	foundation work
machine					ı																			3	machine
hardening machine			1		1	1		1										1					1	6	hardening machine
demolition machine				1													1							2	demolition machine
vehicle for high lift																									vehicle for high lift
work																									work
other construction				1	2						1													4	other construction
machines				ľ																					machines
lathe																									lathe
drill press, milling																									drill press, milling
machine																									machine
grinding machine,																									grinding machine,
buffing machine																									buffing machine
power press																									power press
forging pressure																									forging pressure
hammer																									hammer
shearing machine																									shearing machine
other metal																									other metal
manufacturing																									manufacturing
machines																									machines

centrifugal machine																				centrifugal machine
mixer, grinder																				mixer, grinder
roll machine (except printingroll machine)																				roll machine (except printingroll machine)
injection molding																				injection molding machine
food manufacturing																				food manufacturing machine
printing machine																				printing machine
industrial robot																				industrial robot
other general power machines		1	1			1	1			2	1			1		1		1	10	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																				crane
mobile crane	1	1		3	3	2						1	2	3	2	1			19	mobile crane
derrick crane																				derrick crane
elevator, lift																				elevator, lift

cargo lifting																						cargo lifting
appliance																						appliance
gondola																						gondola
lumberyard																						lumberyard
equipment, logging																						equipment, logging
cableway																						cableway
simple skyline																						simple skyline
yarding equipment																						yarding equipment
other powered																						other powered
crane																						crane
truck	1	4		2		3	1	1	2		2	1	4			1	1	2	2		27	truck
forklift																						forklift
railway equipment																						railway equipment
conveyor																						conveyor
loader																						loader
straddle carrier																						straddle carrier
rough terrain hauler			1		1				1	2				1	1						7	rough terrain hauler
other powered	1																				1	other powered
conveying machines	I																					conveying machines
cars, bus,	_																				1.5	cars, bus,
motorcycle	2			4				2		2	2				I						15	motorcycle
railway vehicle				2															1		3	railway vehicle
other vehicles		1						1		1	1							1		1	6	other vehicles
boiler																						boiler

		 	 	 =	 ==	 							
pressure vessel													pressure vessel
other pressure													other pressure
vessels													vessels
chemical facilities													chemical facilities
gas welding													gas welding
equipment													equipment
arc welding													arc welding
equipment													equipment
other welding													other welding
equipment													equipment
kiln, caldron													kiln, caldron
industrial dryer													industrial dryer
other kiln, caldron													other kiln, caldron
transmission													transmission
electric power													electric power
facilities													facilities
other electrical													other electrical
equipment													equipment
human power													human power
cranes													cranes
human power													human power
hauling equipment													hauling equipment
human power													human power
machine													machine

hand tool																						hand tool
ladder	2									1											3	ladder
slinging tool	1	1								1	1							1			5	slinging tool
other tools				1	1			1													3	other tools
other equipment,																						other equipment,
facilities																						facilities
scaffolding	2																				2	scaffolding
timbering											1	1									2	timbering
stairs, landing stage														1						1	2	stairs, landing stage
opening							1														1	opening
roof, beam, haze,																						roof, beam, haze,
crossbeam,																						crossbeam,
principal rafter																						principal rafter
working platform,				1																	1	working platform,
boot board																						boot board
passage																				1	1	passage
building,	3	1	1		2	1	1		1			2		1	1	2	1		2	1	20	building,
establishment														Ĺ						Ľ		establishment
other temporary																						other temporary
buildings,				1	1								1	1							4	buildings,
establishments																						establishments
explosive substance																						explosive substance
inflammable																						inflammable
substance																						substance

																						 		4
inflammable gas																								inflammable gas
harmful substance									1														1	harmful substance
radiation																								radiation
other hazards,																						1	1	other hazards,
harmful substances																						I	ľ	harmful substances
metal material	2							1		1										1		1	6	metal material
lumber, bamboo																								lumber, bamboo
stone, sand,														1									1	stone, sand,
substance																							<u> </u>	substance
other materials																								other materials
load	1						1																2	load
machine/equipment																								machine/equipment
as load																								as load
natural ground,	5	1	1			4			1	3	1	2				1		1	1	1	1		23	natural ground,
rock		ľ																		<u> </u>				rock
standing tree	1						1				1				1		1	1		1	1		8	standing tree
water				1	1	1			1	2	1		3		1	1		1			1	1	15	water
abnormal																								abnormal
environment																								environment
high/cold																								high/cold
temperature		1	1																				2	temperature
environment																								environment
other environments								1												1		1	3	other environments
other causal agent																								other causal agent

no causal agent																	1				1			2	no causal agent
unclassifiable																									unclassifiable
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

Workers age of fatal accidents in river 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						2	19 years old or less
20-29	1	1		3	3	2	2		1			1		1		1				1	3			20	20-29
30-39	2		4		1		1	1	2	2	1	3		1			2	1		1				22	30-39
40-49	3	1	2	4	2	4	3			1	1	2	4	1			1	1	3		2	3	1	39	40-49
50-59	10	5	4	4	5	9	5	4	2	4	4	4	2	6	2	3	1	2	1	4		2	6	89	50-59
60 years old or more	12	9	4	7	2	5	6	4	5	3	7	3	5	3	4	6	8	3	3	2	6	3	3	113	60 years old or more
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

Workers' number of workplace of fatal accidents in river 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	6	6	5	5	5	4	9	5	6	2	4	4	5	3	4	3	4	3	3	3	5	3	3	100	9 workers or less
10-29	15	7	6	10	7	11	4	4	3	5	7	7	6	9	2	4	5	3	3	2	4	5	5	134	10-29
30-49	6	2	2	3		3	3				1					2	2	2	1	1	2		1	31	30-49
50-99		2	1		1	2	1		1	3	1	2				1	1			1				17	50-99
																				$\overline{}$					

100-299	1																			1			1	3	100-299
300 workers or																									300 workers or
more																									more
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

Month of fatal accidents in river 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	6	1		6		2	1	1	1	2	2	3	1				1			1	1	3		32	January
February	3	1	2	3		3	1	3	5	1		1	1	2	1	4	1		3	1	3	2	3	44	February
March	1	4	2	2	1	3	2	3	1	1	2	1	3	1	1		3	3		2	1		1	38	March
April	1	2	1	2	1		2	1			1	2		2		1							1	17	April
May	2			1	5		4		2			1			1		1	2				1		20	May
June	2	1	1			2		1						1		1	1		1		2		1	14	June
July			3		3	2				2		3	1	2		2		1	1	1		1		22	July
August	3	2			1	2	3			1	1		1		1		1		1					17	August
September	2	2				1					1		1	1			2	1	1	1			1	14	September
October	1	2	3	1		2	1			2	1	1		1			1			1	1			18	October
November	2	2	1		1	1	2			1	2	1					1			1	1	1	2	19	November
December	5		1	3	1	2	1		1		3		3	2	2	2		1			2		1	30	December
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

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	3	1		2		2					3	1		1	1	2	2	1	2	2	1	1	2	27	Hokkaido
Aomori						1		1															1	3	Aomori
lwate	1		1				2				1		1				1				1	1		9	lwate
Miyagi		1	1		1	1	1		1			1	3		1	1		1	1		1			15	Miyagi
Akita				1	1							1					1							4	Akita
Yamagata							1													1		1		3	Yamagata
Fukushima	2	1				1				2				1		1								8	Fukushim
Ibaraki	2	1		4														1						8	Ibaraki
Tochigi	1		1		1									1								1		5	Tochigi
Gunma					1	1					1					1						1		5	Gunma
Saitama				1	1	1					1		1				1							6	Saitama
Chiba	2	1			1		1	2	1			1				1								10	Chiba
Tokyo	1	1	1			2	1			1		1	1					1					1	11	Tokyo
Kanagawa						1	1										1			1			1	5	Kanagawa
Niigata	1					2	1		1	1		1		2	1					1		1		12	Niigata
Toyama					1	1	1					2									1			6	Toyama
Ishikawa	1			1			2												1	1				6	Ishikawa
Fukui											1			1										2	Fukui
Yamanashi				1			1									1								3	Yamanas
Nagano		1		1								1	1											4	Nagano
Gifu		1							1								1							3	Gifu

Shizuoka	2	1						1	1	2	1			1				2						11	Shizuoka
Aichi	1	2	1	3		1			1							1				1				11	Aichi
Mie		2		1	2			1	1								1			1	1		1	11	Mie
Shiga																					1		1	2	Shiga
Kyoto			1				1											1			1			4	Kyoto
Osaka			1			1	1		2	1														6	Osaka
Hyogo					1				1			1							2		1			6	Hyogo
Nara											1		1										1	3	Nara
Wakayama			1		1						1				2									5	Wakayama
Tottori	1																							1	Tottori
Shimane												1												1	Shimane
Okayama	1	1																						2	Okayama
Hiroshima	1		1									1			1						1			5	Hiroshima
Yamaguchi	1					1		1																3	Yamaguchi
Tokushima				1		1																	1	3	Tokushima
Kagawa	2					1		1				1												5	Kagawa
Ehime	1	1						1								1					1			5	Ehime
Kochi	1						2																	3	Kochi
Fukuoka	1	1	2	1			1	1		1			1	2			2		1					14	Fukuoka
Saga			1		1					1								1				1		5	Saga
Nagasaki														1										1	Nagasaki
Kumamoto	1					2				1			1	1		1					1		1	9	Kumamoto
Oita		1		1	1									1			1							5	Oita

Miyazaki	1		1																			1		3	Miyazaki
Kagoshima			1								3		1				1							6	Kagoshima
Okinawa																									Okinawa
total	28	17	14	18	13	20	17	9	10	10	13	13	11	12	6	10	12	8	7	8	11	8	10	285	total

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

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