

## Fatal and non-fatal accidents in city gas service in Japan in 1999-2022

city gas service industry Code No.011602

Type of accidents in city gas service in 1999-2022

| 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 | 2022 | total |
|------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| fall from height                   | 11   | 11   | 15   | 19   | 16   | 11   | 16   | 6    | 7    | 6    | 12   | 3    | 7    | 4    | 10   | 3    | 11   | 3    | 2    | 6    | 12   | 11   | 9    | 7    | 218   |
| falling to same level              | 21   | 23   | 20   | 24   | 24   | 14   | 22   | 12   | 18   | 17   | 10   | 12   | 11   | 10   | 16   | 8    | 8    | 9    | 11   | 13   | 7    | 16   | 20   | 16   | 362   |
| crash                              | 6    | 6    |      | 4    | 6    | 3    | 4    | 2    | 2    | 3    | 3    | 1    | 3    | 2    | 1    | 2    | 2    | 2    | 1    | 7    |      | 1    | 5    | 2    | 68    |
| struck by flying or falling object | 3    | 3    | 5    | 3    | 1    | 2    |      | 3    | 5    | 2    | 1    | 1    | 4    | 2    |      | 2    | 2    | 1    |      | 1    | 1    | 2    |      |      | 44    |
| collapse                           |      |      | 1    | 3    |      | 1    |      |      |      |      |      | 1    | 1    | 1    |      | 2    |      | 1    |      | 1    |      |      | 2    | 1    | 15    |
| crashed by                         |      | 3    | 4    | 1    | 1    |      |      | 1    | 1    |      |      | 2    |      | 1    | 1    | 1    |      | 2    | 2    | 1    | 2    | 2    | 3    |      | 28    |
| caught in/between                  | 7    | 3    | 4    | 4    | 6    | 1    | 3    | 6    | 1    | 2    | 3    | 1    | 3    |      |      | 1    | 1    | 4    | 2    | 2    |      | 1    | 2    | 2    | 59    |
| cut                                | 4    | 1    | 2    | 1    | 1    |      | 1    |      | 3    | 1    | 1    |      | 1    | 2    |      | 1    |      |      |      |      |      |      |      |      | 19    |
| injury to the sole of the foot     | 1    |      |      |      | 1    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 1    |      | 3     |
| drown                              |      |      |      |      |      |      |      |      |      |      |      |      | 1    |      |      |      |      |      |      |      |      |      |      |      | 1     |
| contact to high/low-               | 1    | 1    | 1    | 4    |      | 2    | 1    | 1    | 2    | 3    | 2    |      |      | 1    | 1    | 3    |      | 2    | 2    |      | 2    | 1    | 3    |      | 33    |

|                                    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |
|------------------------------------|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| temperature                        |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |
| contact to harmful substance       | 1  | 3  | 1  | 5   |    |    | 1  | 1  |    |    |    | 1  | 1  |    |    |    | 1  |    | 1  |    |    |    |    |    | 16    |
| electric shock                     |    |    |    |     |    |    | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1     |
| explosion                          | 4  | 1  |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 5     |
| burst                              |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |
| fire                               |    |    | 3  |     |    |    |    |    |    |    | 1  |    |    |    |    |    |    |    |    |    | 1  |    |    |    | 5     |
| traffic accident (public road)     | 17 | 18 | 21 | 20  | 17 | 9  | 15 | 7  | 12 | 15 | 8  | 7  | 5  | 10 | 7  | 13 | 12 | 9  | 7  | 7  | 7  | 6  | 5  | 4  | 258   |
| traffic accident (others)          |    |    | 1  | 1   |    |    |    |    |    | 1  |    | 1  |    |    |    |    |    |    |    | 1  |    |    |    |    | 5     |
| reaction to motion/improper motion | 5  | 12 | 14 | 10  | 10 | 3  | 5  | 7  | 6  | 8  | 7  | 10 | 9  | 4  | 3  | 2  | 5  | 4  | 4  | 6  | 17 | 9  | 8  | 9  | 177   |
| others                             | 3  | 1  | 2  |     |    | 3  |    |    |    |    |    |    | 2  |    | 1  |    |    |    | 1  |    |    |    |    | 1  | 14    |
| unclassifiable                     |    |    | 1  | 1   |    |    |    |    |    |    |    | 1  |    |    |    |    |    |    |    |    |    |    |    |    | 3     |
| total                              | 84 | 86 | 95 | 100 | 83 | 49 | 69 | 46 | 57 | 58 | 48 | 41 | 48 | 37 | 40 | 38 | 42 | 37 | 33 | 45 | 48 | 50 | 58 | 42 | 1,334 |

Causal agents (large) of fatal and non-fatal accidents in city gas service in 1999-2022

| 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 | 2022 | total |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| machine           |      | 3    | 1    | 2    | 2    | 1    | 1    | 2    | 2    | 4    | 1    | 3    | 1    | 3    |      | 1    | 1    | 2    |      | 1    |      |      | 2    |      | 33    |

















|                               |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
|-------------------------------|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|---|--|---|--|---|----|
| pressure vessel               |  |  |   |   |   | 1 |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   | 1  |
| other pressure vessels        |  |  |   | 1 |   | 1 | 2 | 2 |   | 1 | 1 |   | 1 |   | 1 |  |  |   |  |   |  | 3 | 14 |
| chemical facilities           |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| gas welding equipment         |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| arc welding equipment         |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| other welding equipment       |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| kiln, caldron                 |  |  | 1 |   |   |   |   |   | 2 | 1 |   |   |   |   |   |  |  |   |  |   |  |   | 4  |
| industrial dryer              |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| other kiln, caldron           |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| transmission                  |  |  | 1 |   |   |   |   | 1 |   |   |   |   |   |   |   |  |  |   |  |   |  |   | 2  |
| electric power facilities     |  |  |   |   |   |   | 1 |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   | 1  |
| other electrical equipment    |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| human power cranes            |  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |  |   |  |   |    |
| human power hauling equipment |  |  | 4 |   | 2 |   | 4 |   |   |   | 1 | 1 | 1 | 1 | 1 |  |  | 1 |  | 2 |  |   | 18 |

|   |  |  |    |    |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |     |
|---|--|--|----|----|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|----|-----|
| human power   |  |  |    |    |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |     |
| machine   |  |  |    |    |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |     |
| hand tool   |  |  |    | 1  |  |   |   | 1 |   | 1 |   |   |   |   |   |   |   |   |   |   |    |   |    | 3   |
| ladder  |  |  | 4  | 2  |  | 2 |   |   | 2 |   |   |   | 2 | 3 |   | 2 | 1 |   | 3 | 2 | 2  | 1 | 2  | 28  |
| slinging tool                                       |  |  |    |    |  |   |   |   | 1 |   |   |   |   |   |   |   |   |   |   |   |    |   |    | 1   |
| other tools   |  |  | 1  |    |  |   |   | 1 | 1 |   |   | 1 | 1 | 1 |   | 1 | 1 | 1 |   | 1 | 4  | 2 |    | 16  |
| other equipment,<br>facilities                      |  |  | 6  | 2  |  | 2 | 2 | 4 | 3 | 2 |   | 2 |   | 2 | 2 | 2 |   | 3 |   |   |    | 2 |    | 34  |
| scaffolding   |  |  |    |    |  |   |   | 1 |   |   | 1 | 1 | 1 |   |   |   |   |   |   |   |    |   |    | 4   |
| timbering   |  |  |    | 1  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    | 1   |
| stairs, landing stage                               |  |  | 10 | 10 |  | 5 | 6 | 4 | 5 | 2 | 3 | 8 | 3 | 6 | 3 | 8 | 1 | 1 | 6 | 9 | 8  | 8 | 6  | 112 |
| opening   |  |  | 1  | 2  |  | 1 |   |   |   |   |   | 1 |   | 1 |   |   |   |   |   |   |    | 1 |    | 7   |
| roof, beam, haze,<br>crossbeam,<br>principal rafter |  |  |    | 1  |  |   | 1 |   |   | 1 |   |   |   |   |   |   |   |   |   |   | 1  | 1 | 1  | 6   |
| working platform,<br>boot board                     |  |  |    | 1  |  | 2 | 3 | 2 |   | 3 | 1 |   | 2 | 2 |   |   |   | 1 | 1 |   | 2  |   | 3  | 23  |
| passage   |  |  | 11 | 12 |  | 9 | 6 | 5 | 7 | 6 | 6 | 3 | 6 | 2 | 5 | 7 | 5 | 7 | 5 | 7 | 10 | 6 | 10 | 135 |
| building,<br>establishment                          |  |  | 6  | 9  |  | 4 | 1 | 2 | 6 | 4 | 2 | 6 | 1 | 5 | 2 | 2 | 3 | 2 | 3 | 2 | 3  | 5 |    | 68  |
| other temporary<br>buildings,                       |  |  | 1  | 4  |  | 1 |   | 3 |   | 2 |   | 2 | 1 | 1 | 1 | 1 | 3 | 1 | 4 | 2 | 2  | 5 | 2  | 36  |



|   |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |
|---|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| environment                             |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    | 1  |    |    |    |    |    |    |    | 1  |       |
| high/cold<br>temperature<br>environment |    |    |    |     |    |    |    | 1  |    | 1  | 1  |    |    |    |    | 1  |    | 1  | 1  |    | 1  |    |    | 7  |       |
| other environments                      |    |    | 4  |     | 1  |    | 9  | 2  | 2  | 2  |    |    | 1  |    | 2  | 1  |    | 2  | 3  | 5  | 1  | 1  | 3  | 1  | 40    |
| other causal agent                      |    |    |    |     |    |    | 1  | 1  |    |    | 2  | 1  | 2  |    | 1  | 2  |    |    | 2  |    | 1  |    | 1  | 1  | 15    |
| no causal agent                         |    |    | 5  |     | 5  |    | 4  | 2  | 2  | 4  | 2  | 6  | 3  | 2  | 1  | 2  | 2  | 2  |    | 2  | 5  | 2  | 2  | 2  | 55    |
| unclassifiable                          |    |    | 1  |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1  |       |
| total                                   | 84 | 86 | 95 | 100 | 83 | 49 | 69 | 46 | 57 | 58 | 48 | 41 | 48 | 37 | 40 | 38 | 42 | 37 | 33 | 45 | 48 | 50 | 58 | 42 | 1,334 |

Workers age of fatal and non-fatal accidents in city gas service in 1999-2022

| Age                     | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 19 years old or less    |      | 1    |      |      |      |      |      |      | 1    | 1    | 1    |      | 1    | 1    |      |      |      | 1    |      |      |      |      | 1    | 1    | 9     |
| 20-29                   | 10   | 13   | 18   | 9    | 5    | 5    | 3    | 7    | 4    | 6    | 5    | 3    | 3    | 4    | 5    | 9    | 8    | 6    | 6    | 3    | 5    | 8    | 9    | 4    | 158   |
| 30-39                   | 19   | 17   | 18   | 20   | 13   | 9    | 19   | 8    | 16   | 7    | 13   | 9    | 10   | 11   | 9    | 6    | 5    | 5    | 2    | 6    | 9    | 4    | 9    |      | 244   |
| 40-49                   | 25   | 21   | 17   | 36   | 17   | 13   | 16   | 11   | 12   | 16   | 9    | 11   | 13   | 4    | 11   | 8    | 13   | 8    | 8    | 11   | 16   | 14   | 15   | 9    | 334   |
| 50-59                   | 27   | 32   | 39   | 32   | 41   | 18   | 27   | 17   | 20   | 19   | 13   | 11   | 13   | 14   | 9    | 12   | 10   | 11   | 12   | 17   | 11   | 18   | 14   | 21   | 458   |
| 60 years old or<br>more | 3    | 2    | 3    | 3    | 7    | 4    | 4    | 3    | 4    | 9    | 7    | 7    | 8    | 3    | 6    | 3    | 6    | 6    | 5    | 8    | 7    | 6    | 10   | 7    | 131   |
| total                   | 84   | 86   | 95   | 100  | 83   | 49   | 69   | 46   | 57   | 58   | 48   | 41   | 48   | 37   | 40   | 38   | 42   | 37   | 33   | 45   | 48   | 50   | 58   | 42   | 1,334 |

Workers' number of workplace of fatal and non-fatal accidents in city gas service in 1999-2022

| 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 | 2022 | total |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 9 workers or less   | 12   | 4    | 11   | 8    | 4    | 5    | 7    | 6    | 8    |      | 6    | 5    | 2    | 5    | 5    |      | 3    | 3    | 5    | 3    | 7    | 6    | 6    | 1    | 122   |
| 10-29               | 14   | 12   | 15   | 9    | 10   | 7    | 10   | 7    | 14   | 9    | 12   | 13   | 13   | 3    | 5    | 8    | 5    | 10   | 3    | 9    | 9    | 11   | 16   | 13   | 237   |
| 30-49               | 14   | 5    | 4    | 9    | 9    | 6    | 15   | 8    | 3    | 12   | 4    | 2    | 5    | 2    | 4    | 7    | 7    | 3    | 2    | 4    | 6    | 5    | 8    | 4    | 148   |
| 50-99               | 16   | 17   | 11   | 20   | 25   | 12   | 12   | 5    | 11   | 10   | 11   | 4    | 10   | 7    | 12   | 4    | 8    | 9    | 5    | 6    | 10   | 9    | 5    | 9    | 248   |
| 100-299             | 21   | 27   | 37   | 40   | 18   | 11   | 16   | 12   | 12   | 12   | 9    | 10   | 9    | 14   | 9    | 12   | 14   | 8    | 11   | 16   | 6    | 10   | 11   | 10   | 355   |
| 300 workers or more | 7    | 21   | 17   | 14   | 17   | 8    | 9    | 8    | 9    | 15   | 6    | 7    | 9    | 6    | 5    | 7    | 5    | 4    | 7    | 7    | 10   | 9    | 12   | 5    | 224   |
| total               | 84   | 86   | 95   | 100  | 83   | 49   | 69   | 46   | 57   | 58   | 48   | 41   | 48   | 37   | 40   | 38   | 42   | 37   | 33   | 45   | 48   | 50   | 58   | 42   | 1,334 |

Month of fatal and non-fatal accidents in city gas service in 1999-2022

| Month    | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| January  | 4    | 6    | 9    | 7    | 7    | 2    | 8    | 5    | 5    | 6    | 5    | 3    | 5    | 5    | 5    | 2    | 8    | 3    | 4    | 3    | 3    | 3    | 10   | 5    | 123   |
| February | 15   | 7    | 5    | 5    | 3    | 5    | 5    | 5    | 5    | 6    | 3    | 1    | 3    | 6    | 6    | 4    | 1    | 3    | 3    | 12   | 3    | 6    | 4    | 6    | 122   |
| March    | 7    | 6    | 14   | 7    | 9    | 3    | 6    | 5    | 6    | 2    | 4    | 3    | 5    | 6    | 2    | 7    | 4    | 4    | 2    | 3    | 9    | 3    | 4    | 3    | 124   |
| April    | 2    | 10   | 8    | 9    | 11   | 4    | 4    |      | 6    | 7    | 6    | 6    | 6    | 5    | 1    | 2    | 2    |      | 2    | 3    | 3    | 2    | 6    | 5    | 110   |
| May      | 6    | 4    | 7    | 9    | 10   | 2    | 6    | 8    | 6    | 8    | 3    | 3    | 3    | 1    | 4    | 3    | 1    | 4    | 2    |      | 2    | 4    | 5    | 1    | 102   |
| June     | 8    | 9    | 10   | 5    | 9    | 3    | 5    | 3    | 2    | 5    | 4    | 3    | 4    | 2    | 4    | 4    | 2    | 3    | 4    | 4    | 3    | 6    | 3    | 4    | 109   |

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|-----------|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| July      | 5  | 5  | 10 | 15  | 5  | 9  | 8  | 2  | 5  | 4  | 6  | 6  | 4  | 2  | 1  | 5  | 6  | 3  | 1  | 3  | 8  | 5  | 7  | 4  | 129   |
| August    | 10 | 3  | 9  | 6   | 3  | 4  | 5  | 2  | 5  | 3  | 3  |    |    | 1  | 2  | 2  | 9  | 3  | 3  | 2  | 5  | 3  | 1  | 2  | 86    |
| September | 13 | 6  | 7  | 8   | 8  | 5  | 4  | 4  | 2  | 3  | 4  | 4  | 7  | 3  | 3  | 1  | 2  |    | 1  | 5  | 5  | 8  | 2  | 2  | 107   |
| October   | 4  | 10 | 6  | 13  | 10 | 2  | 6  | 1  | 6  | 6  | 2  | 4  | 3  | 3  | 3  | 2  | 4  | 7  | 4  |    | 2  | 3  | 4  | 6  | 111   |
| November  | 2  | 7  | 6  | 11  | 4  | 5  | 2  | 3  | 5  | 1  | 5  | 5  | 4  | 2  | 3  | 2  |    | 3  | 4  | 6  | 4  | 2  | 5  | 1  | 92    |
| December  | 8  | 13 | 4  | 5   | 4  | 5  | 10 | 8  | 4  | 7  | 3  | 3  | 4  | 1  | 6  | 4  | 3  | 4  | 3  | 4  | 1  | 5  | 7  | 3  | 119   |
| total     | 84 | 86 | 95 | 100 | 83 | 49 | 69 | 46 | 57 | 58 | 48 | 41 | 48 | 37 | 40 | 38 | 42 | 37 | 33 | 45 | 48 | 50 | 58 | 42 | 1,334 |

Prefecture of fatal and non-fatal accidents in city gas service in 1999-2022

| Prefecture | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Hokkaido   | 3    | 3    | 3    |      | 6    |      | 7    | 2    | 2    | 1    |      | 1    |      |      |      | 1    |      | 2    | 1    | 1    | 3    | 3    | 1    | 2    | 42    |
| Aomori     | 2    | 1    |      |      | 1    |      | 1    |      |      |      |      |      | 1    |      | 2    |      |      | 1    |      | 1    |      | 1    |      |      | 11    |
| Iwate      |      |      |      |      | 1    |      |      |      | 1    |      | 1    |      |      | 1    |      |      |      |      |      | 1    | 1    |      |      | 1    | 7     |
| Miyagi     | 1    | 1    | 1    |      | 2    |      | 5    | 1    | 3    | 5    | 1    |      | 4    |      |      | 3    | 1    | 1    | 2    | 5    | 5    | 4    | 4    | 3    | 52    |
| Akita      |      |      |      |      |      |      |      |      |      |      | 1    |      | 1    |      |      |      |      |      |      |      |      |      |      | 1    | 3     |
| Yamagata   | 5    |      |      |      |      |      |      |      |      | 1    | 1    |      | 1    | 1    |      |      |      |      |      |      |      |      |      | 1    | 10    |
| Fukushima  |      |      | 1    |      | 2    |      |      | 1    |      | 2    |      | 1    | 2    | 4    |      |      |      | 2    |      |      |      |      | 1    |      | 16    |
| Ibaraki    | 1    |      | 1    |      | 1    |      |      | 1    | 2    | 2    |      |      | 3    |      | 2    | 1    |      | 1    |      |      | 1    | 1    |      |      | 17    |
| Tochigi    |      |      | 2    |      |      |      |      |      |      |      |      |      | 1    | 1    | 2    | 1    |      |      | 2    |      |      | 1    | 4    | 1    | 15    |
| Gunma      | 1    |      | 2    |      | 1    |      |      | 2    | 1    |      | 1    | 1    |      | 3    |      | 1    | 1    | 1    | 1    |      |      | 1    | 1    | 1    | 19    |

|           |    |    |    |  |    |  |    |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |     |
|-----------|----|----|----|--|----|--|----|---|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Saitama   | 2  | 4  | 5  |  | 1  |  | 4  | 3 | 4 | 2 | 2 | 8  | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 4 | 3 | 2 | 61  |
| Chiba     | 7  | 12 | 5  |  | 7  |  | 8  | 2 | 9 | 1 | 6 | 2  | 3 | 3 | 1 | 7 | 8 | 4 | 4 | 3 | 4 | 6 | 5 | 3 | 110 |
| Tokyo     | 13 | 21 | 23 |  | 14 |  | 10 | 1 | 3 | 3 | 3 | 11 | 7 | 6 | 6 | 7 | 4 | 1 | 1 |   | 3 | 5 | 1 | 4 | 147 |
| Kanagawa  | 7  | 8  | 12 |  | 2  |  | 1  | 1 | 1 | 3 | 1 |    | 2 |   | 5 | 1 | 1 | 1 | 5 | 7 | 2 | 1 | 1 | 6 | 68  |
| Niigata   | 1  |    |    |  |    |  |    |   |   |   | 2 | 1  |   |   | 1 | 1 | 2 | 1 | 1 |   |   | 1 | 1 |   | 12  |
| Toyama    |    |    | 1  |  | 1  |  |    | 1 |   |   | 1 |    |   |   |   |   |   |   |   |   |   |   | 2 |   | 6   |
| Ishikawa  | 1  |    |    |  |    |  |    |   |   |   | 1 |    |   |   |   |   |   |   |   | 1 | 2 |   | 3 |   | 8   |
| Fukui     | 2  |    |    |  |    |  |    | 1 |   |   | 1 |    |   |   |   |   |   |   |   |   |   |   |   |   | 4   |
| Yamanashi |    |    | 1  |  |    |  |    |   |   |   |   |    |   |   |   |   |   |   |   | 1 | 1 |   |   |   | 3   |
| Nagano    | 1  |    | 2  |  |    |  | 1  | 2 | 1 | 1 |   |    |   |   | 1 |   |   |   | 1 |   | 1 | 1 | 1 | 2 | 15  |
| Gifu      | 2  | 5  | 2  |  | 2  |  |    |   |   | 2 | 2 |    |   |   |   |   |   | 1 |   | 1 | 2 | 1 | 2 |   | 22  |
| Shizuoka  | 4  | 1  | 7  |  | 3  |  | 4  | 1 | 5 | 4 | 3 |    | 2 | 1 |   | 1 | 4 | 3 |   | 4 | 1 | 1 |   | 1 | 50  |
| Aichi     | 5  | 3  | 3  |  | 7  |  | 7  | 5 | 3 | 6 | 1 | 5  | 1 | 1 | 4 | 2 | 3 | 1 | 3 | 4 | 1 | 2 | 1 | 2 | 70  |
| Mie       | 1  | 2  | 1  |  |    |  |    | 2 |   | 1 | 3 |    |   | 1 |   | 1 |   |   | 2 | 1 |   | 2 |   |   | 17  |
| Shiga     |    |    |    |  | 1  |  | 3  | 1 |   |   |   |    | 1 |   |   |   |   |   | 1 |   |   |   | 1 | 1 | 9   |
| Kyoto     | 2  | 1  | 1  |  | 2  |  |    |   |   |   |   |    |   |   |   |   | 1 | 1 |   |   | 1 | 1 |   | 1 | 11  |
| Osaka     | 3  | 12 | 4  |  | 7  |  | 1  | 2 | 4 | 4 | 4 | 2  | 5 | 3 | 1 |   | 2 | 1 | 2 | 4 | 3 |   | 3 |   | 67  |
| Hyogo     | 5  | 1  | 2  |  | 5  |  | 2  | 3 | 3 | 1 |   |    |   | 1 | 1 |   | 1 | 2 |   |   | 2 | 4 | 1 |   | 34  |
| Nara      | 1  | 1  |    |  |    |  |    |   |   | 1 | 1 | 2  |   |   | 1 | 1 | 1 | 2 |   | 2 |   |   | 1 |   | 14  |
| Wakayama  |    | 1  |    |  |    |  |    |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   | 1   |
| Tottori   |    | 1  |    |  | 1  |  |    | 1 |   |   |   |    |   |   |   |   |   |   |   | 1 |   |   |   | 1 | 5   |



|           |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |
|-----------|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| Shimane   |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |
| Okayama   |    |    | 1  |     | 2  |    |    |    |    | 3  |    |    |    |    |    | 1  | 1  |    |    | 1  |    | 1  | 2  |    | 12    |
| Hiroshima | 1  | 3  | 2  |     | 1  |    | 2  | 4  | 3  | 3  | 1  | 1  |    |    | 3  | 2  | 1  | 1  |    | 2  | 1  | 2  | 3  |    | 36    |
| Yamaguchi |    |    |    |     | 1  |    | 4  |    |    |    | 1  | 1  | 1  |    |    |    |    | 1  |    |    |    |    |    |    | 9     |
| Tokushima |    |    |    |     |    |    |    |    |    | 1  |    |    |    |    |    |    |    |    |    |    | 1  | 1  |    |    | 3     |
| Kagawa    |    | 1  |    |     |    |    |    |    |    | 1  | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    | 3     |
| Ehime     | 2  |    |    |     | 1  |    |    |    |    | 1  |    |    |    | 1  |    |    |    | 1  |    |    |    |    |    |    | 6     |
| Kochi     | 1  |    |    |     | 1  |    | 1  |    |    |    |    |    |    |    |    | 1  | 1  |    |    |    | 2  |    | 1  | 1  | 9     |
| Fukuoka   | 2  | 3  | 3  |     | 8  |    | 4  | 4  | 5  | 6  | 5  | 3  | 4  | 2  | 3  | 1  | 2  | 5  | 3  | 5  | 5  | 3  | 7  | 1  | 84    |
| Saga      |    |    | 2  |     | 1  |    | 1  |    | 2  |    |    |    |    |    | 2  | 1  |    |    |    |    | 1  | 1  |    | 1  | 12    |
| Nagasaki  | 1  | 1  | 3  |     |    |    | 1  | 3  | 1  | 2  | 1  |    | 1  |    |    | 1  |    |    |    |    | 1  |    | 2  | 3  | 21    |
| Kumamoto  | 4  |    |    |     |    |    |    |    |    |    | 1  |    |    |    |    |    |    | 1  |    | 1  |    |    | 4  | 2  | 13    |
| Oita      |    |    |    |     |    |    | 1  |    |    |    |    | 3  | 3  | 4  |    |    | 1  |    |    |    | 2  | 1  |    | 1  | 16    |
| Miyazaki  | 1  |    | 1  |     |    |    |    | 1  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1  |    | 4     |
| Kagoshima | 1  |    | 4  |     | 1  |    | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 3  | 2  | 4  | 1  |    |    | 1  |    | 1  | 1  | 28    |
| Okinawa   | 1  |    |    |     |    |    |    |    | 2  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 3     |
| total     | 84 | 86 | 95 | 100 | 83 | 49 | 69 | 46 | 57 | 58 | 48 | 41 | 48 | 37 | 40 | 38 | 42 | 37 | 33 | 45 | 48 | 50 | 58 | 42 | 1,334 |

Fatal and non-fatal accidents mean fatal and non-fatal injuries and occupational diseases with work absence of 4 days and more.

Data of 2022 year do not include Covid-19 cases. Data of 2020 & 2021 year include Covid-19 cases. Fatal and non-fatal data are same situation.

Data of 2011 year include fatal and non-fatal accidents caused by Great East Japan Earthquake in 2011.



|                                    |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
|------------------------------------|---|---|---|--|--|--|--|---|--|--|--|---|---|---|--|---|---|--|--|--|--|--|--|---|
| drown                              |   |   |   |  |  |  |  |   |  |  |  | 1 |   |   |  |   |   |  |  |  |  |  |  | 1 |
| contact to high/low-temperature    |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| contact to harmful substance       | 1 | 1 |   |  |  |  |  | 1 |  |  |  |   |   |   |  | 1 |   |  |  |  |  |  |  | 4 |
| electric shock                     |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| explosion                          |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| burst                              |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| fire                               |   |   | 1 |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  | 1 |
| traffic accident (public road)     |   |   |   |  |  |  |  |   |  |  |  |   | 1 |   |  |   |   |  |  |  |  |  |  | 1 |
| traffic accident (others)          |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| reaction to motion/improper motion |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| others                             |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| unclassifiable                     |   |   |   |  |  |  |  |   |  |  |  |   |   |   |  |   |   |  |  |  |  |  |  |   |
| total                              | 1 | 1 | 1 |  |  |  |  | 1 |  |  |  | 1 | 1 | 1 |  |   | 1 |  |  |  |  |  |  | 8 |

Causal agents (large) of fatal accidents in city gas service in 1999-2022

































|           |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
|-----------|---|---|---|--|--|--|--|---|--|--|---|---|---|---|---|--|--|--|--|--|--|--|--|---|
| Shimane   |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Okayama   |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Hiroshima |   |   |   |  |  |  |  |   |  |  |   |   |   |   | 1 |  |  |  |  |  |  |  |  | 1 |
| Yamaguchi |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Tokushima |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Kagawa    |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Ehime     |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Kochi     |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Fukuoka   |   |   |   |  |  |  |  |   |  |  | 1 |   |   |   |   |  |  |  |  |  |  |  |  | 1 |
| Saga      |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Nagasaki  |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Kumamoto  |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Oita      |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Miyazaki  |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| Kagoshima |   |   | 1 |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  | 1 |
| Okinawa   |   |   |   |  |  |  |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |  |   |
| total     | 1 | 1 | 1 |  |  |  |  | 1 |  |  |   | 1 | 1 | 1 |   |  |  |  |  |  |  |  |  | 8 |

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

Return to [https://www.jisha.or.jp/english/statistics/2022e\\_industry.html](https://www.jisha.or.jp/english/statistics/2022e_industry.html)