City of Kita

Kita City, Tokyo, Flood Disaster Hazard Map

Kita City has rivers of various sizes, including the Arakawa River. These riparian spaces provide the city with scenic views, but they can also cause flood disaster such as river overflow when heavy rain falls due to typhoons and so on. Parks and woodlands are located along the cliff line connecting the difference in height between east and west, but there are also areas where there is a risk of steep slope failures during heavy rain.

This hazard map introduces various measures against flood disaster. Unlike earthquakes, occurrence of flood disaster can be predicted. Be sure to check disaster countermeasures and evacuation behaviors on a daily basis, and aim for "zero failure-to-escape" from flood disaster.

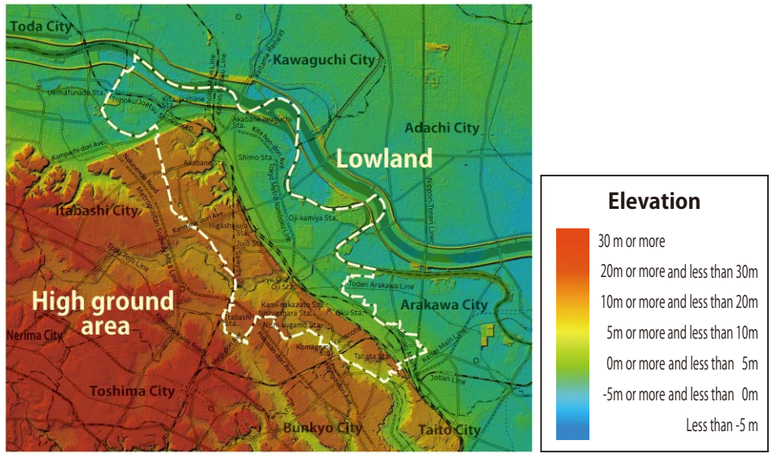
Table of Contents

Geography of Kita City

● Topographical characteristics

The topography of Kita City is clearly divided into high ground areas to the west and lowland areas to the east. The difference in elevation is about 25 meters at the largest, which is the height equivalent to an eight-story building.

Therefore, there is a clear distinction between high flood risk areas and low flood risk areas when the Arakawa River floods.



Elevation shaded-relief map (situation in Kita City)
It was added to the GSI Maps (elevation tint map and hill shaded-relief map)

● Impact of flooding of the Arakawa River

If the Arakawa River floods, flood damage is expected to affect the entire lowland area where about 200,000 citizens live. In some places, the height of flood water may reach the third floor or higher, and two weeks or more may pass before the water recedes. Furthermore, in areas close to the Arakawa River, if the levee bursts, the muddy water mixed with earth and sand will flow out at once, and there is a risk that houses may collapse due to the force of the current (flooding risk areas including collapse of buildings).

Flood control project

● Measures for flood control of the Arakawa River

The Arakawa River maintains a large control pond in the upstream part in Saitama Prefecture, and when the water level is rising, the river water is channeled into the control pond to control the water level. A project to increase the number of control ponds of the Arakawa River is also under way, which, when completed, will further reduce the risk of flooding in the river.

● Measures for flood control of the Shakujii River

In the Shakujii River, river improvement is progressing while taking into consideration the surrounding natural environment. Widening the river channel and improving the river bed are in process, starting from downstream. In addition, the maintenance of control ponds such as a belowground wide-area control pond of Loop 7 is progressing.

● Measures for flood control of the Shingashi River

Temporary storage in the Asaka control pond reduces river flow in the downstream section. Since the flood peak of the Shingashi River comes generally earlier than that of the Arakawa River, opening the Asaka Floodgate and diverting the Shingashi River flood water into the Arakawa River can reduce flood damage in the Shingashi River basin.

Photo of Asaka Floodgate
Photos: MLIT Kanto Regional Development Bureau

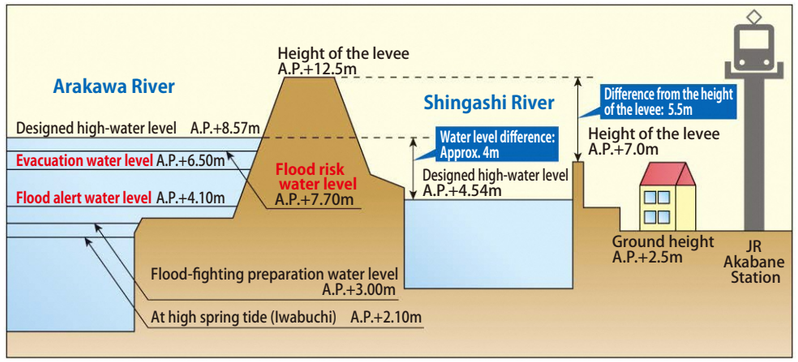
Rivers and flood disaster in Kita City

In recent years, large-scale disasters by record-breaking heavy rain and others have occurred every year in various parts of the country, and preparation for flood disaster has become increasingly important. In Kita City, Typhoon No. 19 in 2019 recorded the third highest water level since the end of World War II at the Iwabuchi Floodgate (upper) Gauging Station in the Arakawa River. Small and medium-sized rivers such as the Shakujii River have also been damaged by overflow due to a sudden rise in the water level caused by torrential rain.

Kanto and Tohoku Heavy Rain in September 2015 Kinu-River flood disaster
Photos: MLIT Kanto Regional Development Bureau

Near the Iwabuchi Floodgate

● Cross-sectional view



Water level indication of Iwabuchi Floodgate (upper) Gauging Station

A.P. is an abbreviation for Arakawa Peil, a unit representing the standard of the Arakawa River system. T.P. (Tokyo Peil=so called above sea level), which is the current national standard of height, has been set to A.P.+1.1344m.
The design high-water level refers to the water level at which a levee is likely to burst. The dangerous water level at the Iwabuchi Floodgate (upper) is the water level that reaches the design high-water level at any point downstream of the Arakawa River (from Sasame Bridge spanning Toda City of Saitama Prefecture and Itabashi City to the mouth of the river) (*See page 13 for the relation between water level and evacuation information).

● Iwabuchi Floodgate

The Iwabuchi Floodgate, located at the fork of the Arakawa River and the Sumida River, has an important role in protecting the lives of citizens from flood disaster, by closing the gate to prevent the floodwater of the Arakawa River from flowing into the Sumida River when the water level in the Arakawa River rises (exceeds A.P.+4 m).

● Aerial photograph of the Arakawa River

Aerial photograph of the Iwabuchi Floodgate
Photos: MLIT Kanto Regional Development Bureau

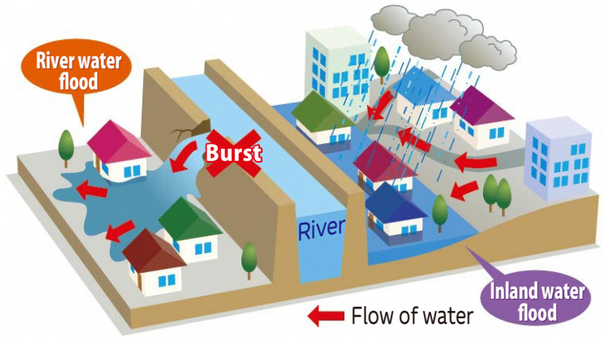
At normal times

When the river rises

Due to the record-breaking heavy rain in the Arakawa River basin caused by the 2019 East Japan Typhoon (Typhoon No. 19 in 2019), at 9:50 on October 13, the Iwabuchi Floodgate (upper) Gauging Station recorded the third highest A.P.+7.17 m in the postwar era, following the typhoon's passage at around 21: 00 on October 12.

Types and mechanisms of flood disaster

There are three major types of flood disaster: "river water flood," "inland water flood," and "storm surge flood."



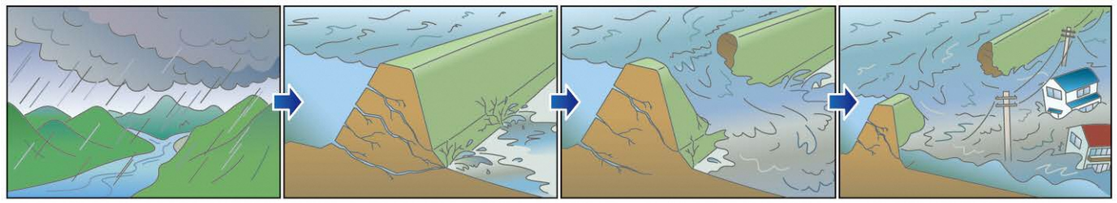
River water flood

- A river overflows the levee.
- The levee bursts.

Inland water flood

- Rainwater accumulates at the spot.
- Water overflows because heavy rainfall exceeds sewerage drainage capacity.
- Water level of a river is too high to drain into.

● River water flood



Heavy rain increases the volume of water in the river, and the water level starts to rise.

Once the water reaches the top of the levee, the levee starts to be pressurized by the water.

As the water increases, the levee cannot withstand water pressure, and begins to burst accordingly.

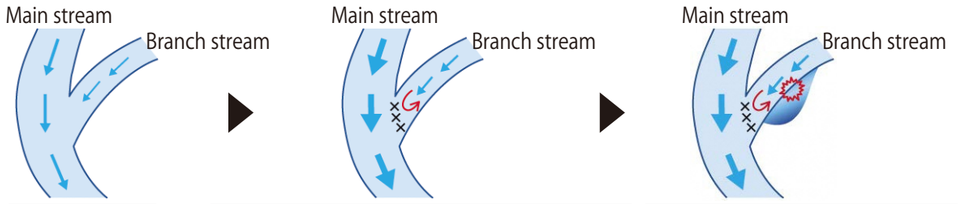
As the burst spreads at once, water gushes out and attacks houses and others.

● Possibility of simultaneous flooding of multiple rivers

In Kita City, there are small and medium-sized rivers such as the Shakujii River, Shingashi River, and Sumida River in addition to the Arakawa River. When a large typhoon approaches, there is a possibility that not only the Arakawa River but also small and medium-sized rivers flood at the same time. Small and medium-sized rivers sometimes flood before the Arakawa River, because the amount of water that can be accepted is small. In particular, at the point where the rivers meet, the rising water level of the main stream can cause the water in branch streams to flow back or flood because it has nowhere to go (backwater phenomenon). There is also a possibility of sediment disaster in the higher ground.

If you only pay attention to the flooding of the Arakawa River and think that you are still safe, by the time you are ready to escape, your surroundings may have inundated by the flooding of small and medium-sized rivers, or the evacuation route from your home to higher ground may have been cut off. Be sure to evacuate early when a typhoon is approaching.

◆ What is the backwater phenomenon?



Normal state of confluence

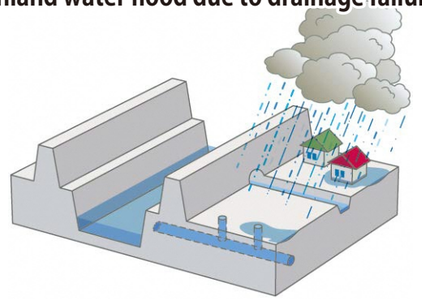
Heavy rains cause the water level of the main stream to rise, and the water in branch streams to flow back, leaving no place for the water to go.

Furthermore, the water level of the branch streams rises and floods.

The backwater phenomenon often occurs when a branch stream (small-sized river) meets a main stream (large-sized river) in the event of flooding, and the water from the branch stream cannot flow into the main stream. In the case of Kita City, there is a point where the Shakujii River joins the Sumida River, and there is a risk of backwater flooding at this point.

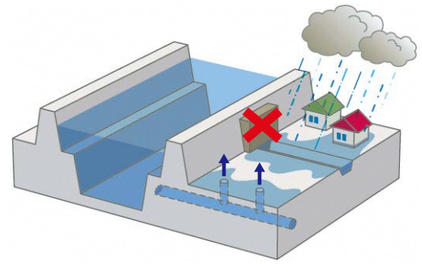
● Inland water flood

Inland water flood due to drainage failure



- Flood that occurs when the drainage capacity of rainwater cannot keep up with the heavy rainfall for a short period of time.
- It also occurs in places other than the areas around rivers.

Inland water flood due to rise in river level



- Flood occurs when rainwater around the river cannot be drained because the water level of the river has risen.
- The area of occurrence is limited to the vicinity of rivers with high levees.

● Flood due to storm surge

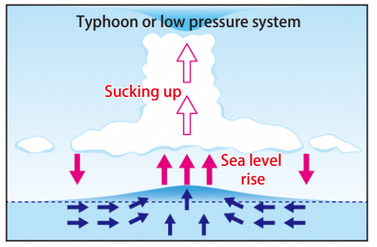
When a typhoon or a developed low pressure system passes through, the sea level (tide level) can rise significantly, which is called a "storm surge." When high tide and storm surge coincide, the storm surge level rises even higher, making major disaster more likely to occur.

There are two main factors that cause storm surge:

❶ Lowering atmospheric pressure sucks up the sea surface

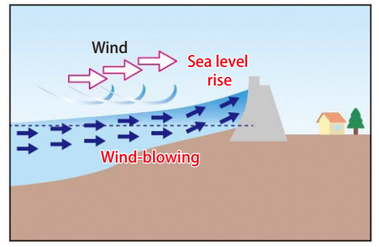
Because the central pressure of typhoons or low pressure systems is lower than that of the surrounding area, the surrounding air pushes against the sea surface, and the air near the center acts to suck up the sea surface, resulting in a rise in the sea level.

When the pressure drops by 1 hPa (hectopascal), the sea level rises by about 1 cm.



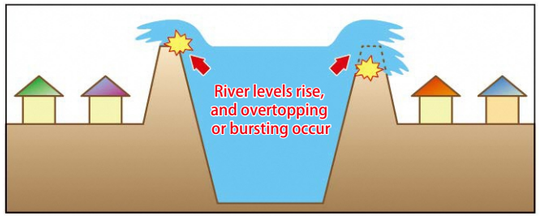
❷ Wind-blowing seawater

When the strong winds associated with typhoons blow from offshore toward the coast, the winds push seawater onshore, causing sea levels near the coast to rise abnormally. The shallower the water depth, the stronger the wind-blowing acts and the more likely a storm surge is to occur.



◆ Why does storm surge damage occur even in areas far from the sea?

Due to sea level rise caused by storm surge, the water level of rivers in Kita City also rises. Then the water level rise caused by rainfall from a large typhoon is added to this, flooding damage is assumed when rivers cannot handle the rainfall and overflow. Even in Kita City, there is a possibility of flooding due to the rise of the river water level.



Concept of evacuation in case of large-scale flood disaster with flooding of the Arakawa River

In recent years, large-scale flood disaster caused by heavy rains and typhoons has occurred all over the country. In March 2020, Kita City formulated the "Basic Policy for Evacuation Behaviors Assuming Large-Scale Flood Disaster in Kita City, Tokyo," which outlines evacuation behaviors in preparation for large-scale flood disaster such as flooding of the Arakawa River.

The most important articles, Articles 2 and 3, are explained here. The basic policy is also available on the Kita City website. If you want to get more information, please refer to (https://www.city.kita.tokyo.jp/bosaikiki/bosai/suigai/kihonhousin.html).

"Basic Policy for Evacuation Behaviors in the Event of Large-Scale Flood Disaster" —Five Points for Evacuation—

1. Evacuate independently.
2. Learn about disasters.
3. Do not stay at home, but escape to higher ground as far away as possible.
4. Refrain from evacuating by car, for the sake of those who really need cars for evacuation.
5. To ensure that no one is left behind, reach out to the people around you and let them reach out to you.

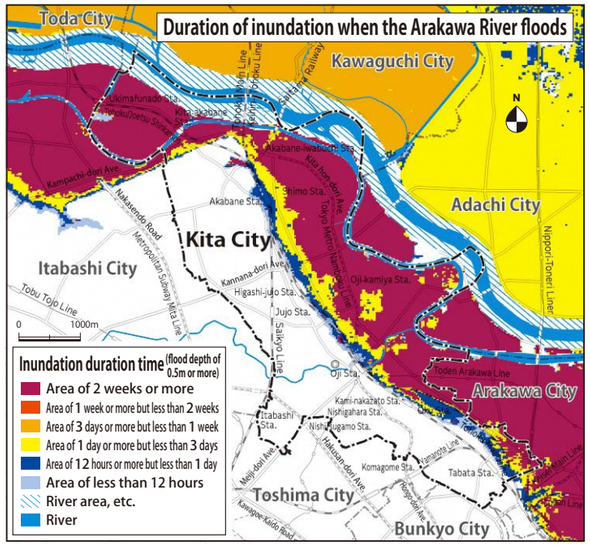
Declaration from Kita City

Kita City will support citizens through all its offices.

Article 2 of the Basic Policy　Learn about disasters.

Most of the lowlands remain flooded for not less than two weeks!!

If the Arakawa River floods, it is assumed that the water rises to a height of not less than 5 meters in some places, and that **the water will not recede for at least two weeks**. Moreover, if flood disaster occurs on the scale of the Arakawa River flooding, various disasters such as flooding of small and medium-sized rivers (Shakujii River, Shingashi River, etc.) and sediment disaster may occur before the Arakawa River flooding. It is necessary to consider the occurrence of these disasters when evacuating from flooding of the Arakawa River. Acquire knowledge about such disasters on a daily basis and plan your evacuation behaviors.



Article 3 of the Basic Policy　Do not stay at home, but escape to higher ground as far away as possible.

The best recommended evacuation is to a high ground far away!!

● Concept of evacuation

The topography of Kita City is clearly divided into high ground areas to the west and lowland areas to the east. If the Arakawa River floods, most of the lowland areas (where about 200,000 people live) are assumed to be flooded. Many areas are expected to be flooded not less than 5 meters, so the basic rule is to **"evacuate to higher ground as far away as possible."**

In the case that large-scale flood disaster is expected to occur, Kita City will establish evacuation sites*1 mainly at the city elementary and junior high schools on higher ground that are not expected to be flooded. However, the space of evacuation sites is limited, and the environment is far from comfortable. Crowding also increases the risk of infection. Therefore, **we ask all citizens to cooperate in early distributed evacuation to safe places (the best recommended evacuation), including evacuation outside the city**.

*1 For a list of evacuation sites, see "Flood disaster evacuation sites on high ground" on page 8.

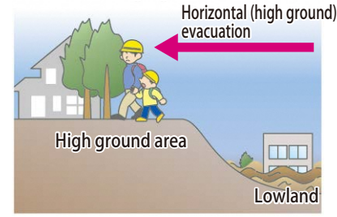
The best recommended evacuation

Evacuate to higher ground (outside of Kita City) as far away as possible before rain or wind increases.

Please evacuate to a distant higher ground outside of Kita City as soon as possible.

Second-best recommended evacuation

Evacuate to an evacuation site on higher ground in Kita City (flood disaster evacuation sites on high ground).



● Concept of distributed evacuation and evacuation relying on connections, etc.

Evacuation destinations are not only public facilities that are evacuation sites. Be sure to consider evacuating to relatives or acquaintances who live in a safe place, and keep in touch with them on a regular basis. Evacuation using private hotels, etc. will also constitute distributed evacuation.

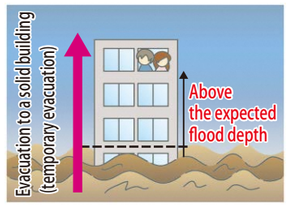
● Evacuation in case of emergency (in unavoidable situation)

Evacuation to the upper floors of apartment buildings in flood risk areas may result in a long stay in an environment without water, food, or electricity, because once the area is flooded, the river water may not recede for at least two weeks and all lifeline services may be shut down.

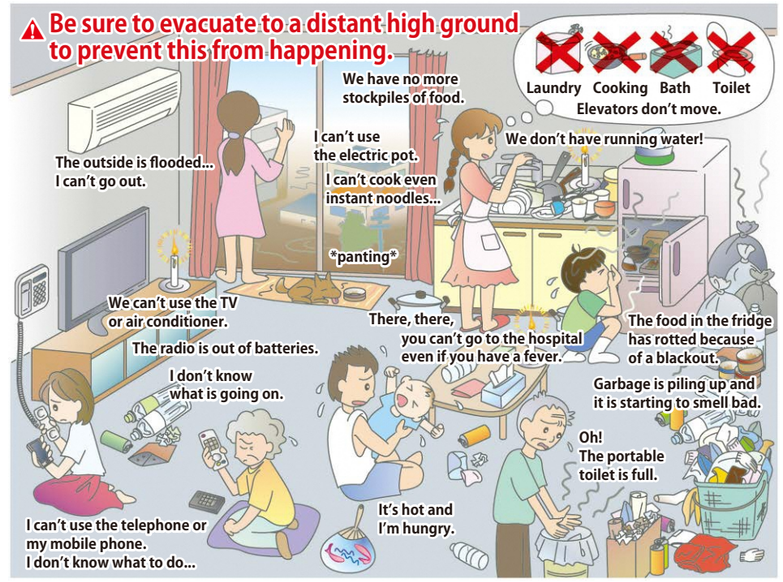
Also, when the Arakawa River floods, many municipalities in addition to Kita City will be damaged at the same time, so rescue may not be able to come immediately. Therefore, **please do not evacuate to such places unless you do not have time to evacuate**.

Emergency safety measures

Evacuate to the upper floors of a solid, tall building (concrete, heavy steel structure, etc.) only if there is no time to move to higher ground.



*Never evacuate to the upper floor of a building that is not solid.



List of flood disaster evacuation sites established by Kita City

Evacuation sites will be different depending on the assumed flood disaster

Kita City reviewed the evacuation sites from flood disaster and organized them into (A) the case of the flooding of the Arakawa River (flood disaster evacuation sites on high ground) and (B) the case of the flooding of the Shakujii River/sediment disaster (steep slope failure) (flood disaster evacuation sites).

When the risk of flood disaster increases, either (A) or (B) evacuation sites will be established depending on the expected scale of river flooding and flood disaster.

Information on the opening of evacuation sites can be found on the Kita City website and Kita City e-mail newsletter, etc.

A Assuming the flooding of the Arakawa River — Flood disaster evacuation sites on high ground

They will be opened when it is judged that there is a risk of flooding of the Arakawa River, such as the approach of a large typhoon that causes heavy rain over a wide area including the upper reaches of the Arakawa River.

Since the duration of inundation is expected to be long and typhoon approaches can be predicted in advance, evacuation sites will be opened only in areas with low risk of inundation.

Moreover, other disasters such as flooding of the Shakujii River and sediment disasters may occur at the same time during evacuation, so caution is needed.

(Assumed disasters)
- Flooding of the Arakawa River, Shingashi River, Sumida River, Shakujii River
- Sediment disaster (steep slope failure)

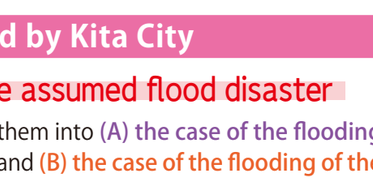
(Anticipated weather conditions)
- Landfall of a large typhoon in Kanto

(Possible damage and damaged area)
- Inundation of the flood risk areas including the Arakawa River, Shakujii River, and Shingashi River
- Occurrence of sediment disaster in sediment disaster warning areas

◆ Concept of evacuation destinations

When the Arakawa River floods, it is assumed that most of the low-lying areas will be inundated; especially, areas near the Arakawa River may be flooded not less than 5 meters. Therefore, if there is a risk of the Arakawa River flooding, basic response is to evacuate to higher ground as far away as possible.

*See pages 6-7 for details.

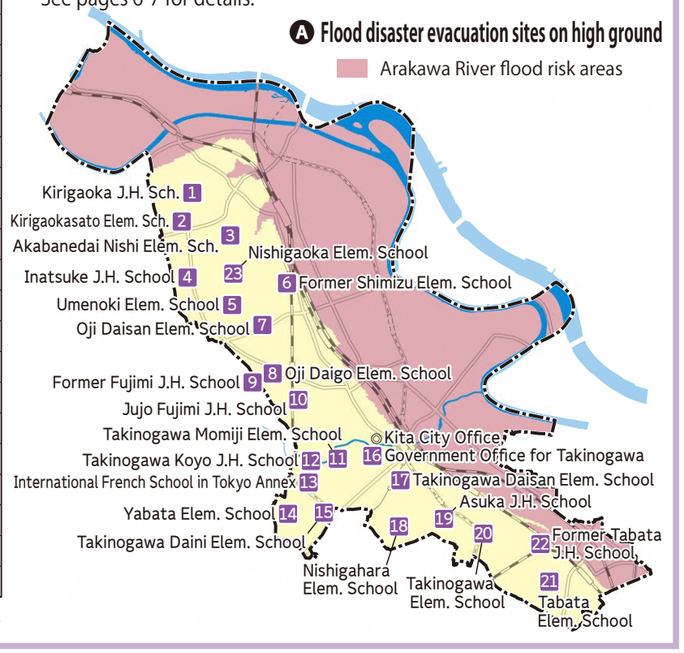


< Most hazardous residence form and place >

No.	Facility name	Location
1	Kirigaoka J.H. Sch.	2-6-11 Kirigaoka
2	Kirigaokasato Elem. Sch.	1-10-23 Kirigaoka
3	Akabanedai Nishi Elem. Sch.	2-1-34 Akabanedai
4	Inatsuke J.H. School	6-1-4 Akabane-nishi
5	Umenoki Elem. Sch.	2-21-15 Nishigaoka
6	Former Shimizu Elem. Sch.	4-5-17 Jujo-nakahara
7	Oji Daisan Elem. Sch.	5-2-3 Kami-jujo
8	Oji Daigo Elem. Sch.	2-18-17 Kami-jujo
9	Former Fujimi J.H. Sch.	3-1-25 Kami-jujo
10	Jujo Fujimi J.H. Sch.	1-9-33 Jujodai
11	Takinogawa Momiji Elem. Sch.	3-72-1 Takinogawa
12	Takinogawa Koyo J.H. Sch.	5-55-8 Takinogawa
13	International French School in Tokyo Annex	5-44-15 Takinogawa
14	Yabata Elem. School	7-12-17 Takinogawa
15	Takinogawa Daini Elem. Sch.	6-19-4 Takinogawa
16	Kita City Office, Government Office for Takinogawa	2-52-10 Takinogawa
17	Takinogawa Daisan Elem. Sch.	1-12-27 Takinogawa
18	Nishigahara Elem. Sch.	4-19-21 Nishigahara
19	Asuka J.H. School	3-5-12 Nishigahara
20	Takinogawa Elem. Sch.	1-18-10 Nishigahara
21	Tabata Elem. School	5-4-1 Tabata
22	Former Tabata J.H. Sch.	6-9-1 Tabata
23	Nishigaoka Elem. Sch.	1-12-14 Nishigaoka

As of December 1, 2023

A Flood disaster evacuation sites on high ground



*For a more detailed map, please see the folding map.

*The evacuation sites may be changed due to renovation work of facilities, etc., so please check the City website for updated information.

B Assuming the flooding of the Shakujii River/sediment disaster (steep slope failure) — Flood disaster evacuation sites

They will be opened when the flooding of the Shakujii River or sediment disaster is expected.

Since the duration of inundation is expected to be relatively short, torrential rains are difficult to predict in advance, and the areas where damage is expected are limited, evacuation sites will be established near the areas where damage may occur.

Heavy rain may be falling at the time of evacuation, so caution is needed.

(Assumed disasters)
- Flooding of the Shakujii River
- Sediment disaster (steep slope failure)

(Anticipated weather conditions)
- Linear precipitation zone occurs and torrential rain (guerrilla rainstorm) occurs in Tokyo

(Possible damage and damaged area)
- Inundation in the flood risk area of the Shakujii River (around the Shakujii River)
- Occurrence of sediment disaster in sediment disaster warning areas

◆ Concept of evacuation destinations

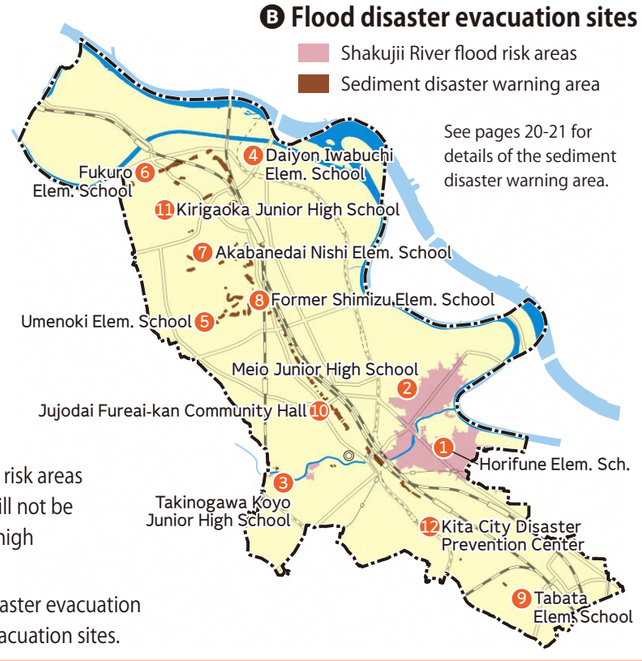
In the sediment disaster warning area, the sediment disaster special warning area, and the flooding risk areas including collapse of buildings along the Shakujii River, evacuation to a safe place nearby is necessary.

In addition, in the flood risk areas of the Shakujii River outside of the flooding risk areas including collapse buildings, evacuation to areas that will not be flooded is a desirable response. However, the flooding of the Shakujii River has a shorter duration of inundation than that of the Arakawa River and it is difficult to predict the occurrence of flood disaster in advance. Therefore, evacuation to the upper floors of buildings in the flood area (floors higher than the expected flood depth) can be considered.

No.	Facility name	Location
1	Horifune Elem. Sch. *1	2-11-9 Horifune
2	Meio J.H. School *1	6-3-23 Oji
3	Takinogawa Koyo J.H. Sch.	5-55-8 Takinogawa
4	Daiyon Iwabuchi Elem. Sch. *1	3-24-23 Akabane
5	Umenoki Elem. Sch.	2-21-15 Nishigaoka
6	Fukuro Elem. Sch. *1	2-15-3 Akabane-kita
7	Akabanedai Nishi Elem. Sch.	2-1-34Akabanedai
8	Former Shimizu Elem. Sch.	4-5-17 Jujo-nakahara
9	Tabata Elem. School	5-4-1 Tabata
10	Jujodai Fureai-kan Community Hall	1-2-18 Naka-jujo
11	Kirigaoka J.H. School	2-6-11 Kirigaoka
12	Kita City Disaster Prevention Center	2-1-6 Nishigahara

As of December 1, 2023

B Flood disaster evacuation sites



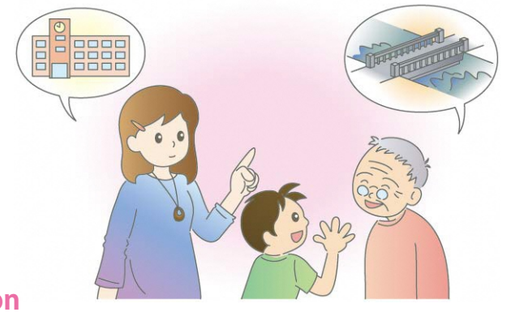
*1 Since the evacuation site is located in the flood risk areas in the event of the Arakawa River flooding, it will not be opened as a "flood disaster evacuation site on high ground" in case of the Arakawa River flooding.

*2 Due to weather conditions, etc., some flood disaster evacuation sites may be established earlier as voluntary evacuation sites.

Preparation and guidelines on a daily basis

● Check evacuation sites and safe evacuation routes in the event of flooding

- Check the evacuation sites and routes with the hazard map on a daily basis.
- Actually walk to the evacuation sites and check if there are any dangerous or difficult places when you evacuate.
- After talking with your family about flood disaster preparedness, create a My Timeline. See pages 22-23.



● Check items to be taken in case of evacuation

Use the checklist of items to be taken in case of emergency on the back page.

Prepare items based on the list according to your family structure.

● Check and maintain around your house

- Items that are likely to blown away in high winds should be fixed or brought into the house.
- Check whether shutters, gutters, an antenna, a garage roof, etc. are damaged or fixed firmly.
- Clean ditches and water collecting ports, and do not place things on them.

● Prepare sandbags and drainage pumps

- Prepare sandbags in advance.
- If your house is half-underground, prepare drainage pumps.

◆ Preparedness for flood damage (free rental of sandbags, etc.)

In order to prevent inundation, Kita City lends sandbags in preparation for heavy rain during typhoons. Please contact us in advance, as we may not be able to accommodate requests made on the day. Kita City also has sandbag stations at five locations in the city, and you can use the sandbags stored inside as necessary.

Please check the Kita City website for information on the subsidy system for water stop boards and rainwater storage tanks to be installed in houses, etc. to help prevent flooding.

[Contact]
Rivers Section of Roads and Parks Division,
Telephone: 03-3908-9213

Locations of sandbag stations

Sandbag station		Location	Quantity in storage	Remarks
1	Kita City Office	1-15-22 Oji-honcho	80 bags	Front entrance
2	Shimashita Park	6-10 Akabane-nishi	80 bags	Inside the park
3	Toshima Park	2-25 Toshima	80 bags	Inside the park
4	Horifune Park	2-10 Horifune	80 bags	Inside the park
5	Kan-non Bridge	5-53 Takinogawa	80 bags	Roadside

● Participation in community activities

◆ Importance of local communities

In the event of a large-scale disaster, not only residents but also administrative organs are affected at the same time, so public help (government, fire, police, medical institutions, etc.) may not function smoothly. Therefore, mutual help to cooperate with people in the neighborhood and the community is important, and it is crucial to know each other on a daily basis so that you can help each other in the event of a disaster.

Horifune Disaster Prevention Management Council

*If you would like to join a town/community association, please contact us below.
Regional Development Section, Regional Development Division, Telephone: 03-5390-0092
https://www.city.kita.tokyo.jp/chiikishinko/kurashi/volunteer/chokai.html

◆ Activities of town/community associations

Town/community associations are voluntary organizations formed by the residents of each area. The associations play a central role in disaster prevention activities in the community by conducting evacuation drills in normal times and establishing a disaster prevention activity system in cooperation with the city in the event of disaster, etc.

In order to prepare for disasters, actively participate in evacuation drills conducted by your town/community associations.

Tabata-shimmachi 2-chome community associations joint flood disaster prevention drill

Ukima-higashi town association evacuation drill

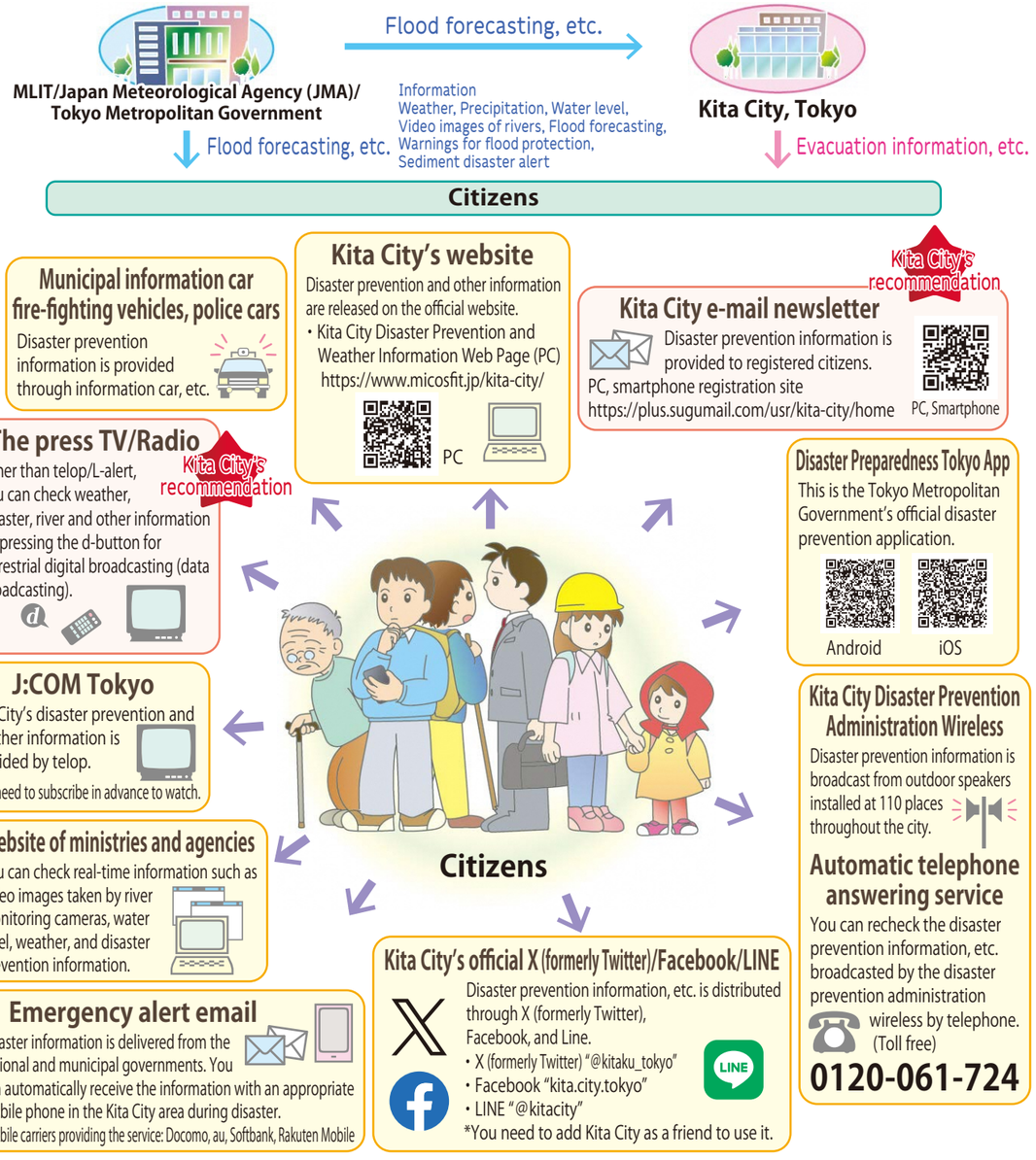
Ukima-higashi town association evacuation drill (checking the flood depth)

Kishimachi 1-chome town association evacuation drill

◆ Cooperation in evacuation of persons requiring special care

People with disabilities and the elderly who require special care, etc. need to evacuate early. Try to build face-to-face relationships by talking about evacuation sites on a regular basis, and talk to them when evacuating, etc.

Information transmission path and collection of information



● Disaster prevention information site useful in case of flood disaster

Kita City Water Level and Rainfall Information System
http://kawanosuii2-kitaku-tokyo.jp/

Water Level Information of the Shakujii River (Yahoo!)
https://typhoon.yahoo.co.jp/weather/river/8303040032/

Overlaying Hazard Map
(Ministry of Land, Infrastructure, Transport and Tourism)
https://disaportal.gsi.go.jp/maps/

Disaster prevention information on rivers
(Ministry of Land, Infrastructure, Transport and Tourism)
https://www.river.go.jp/

KIKIKURU (danger level distribution)
https://www.jma.go.jp/bosai/#pattern=rain_level

◆ Special confirmations in case of flood disaster

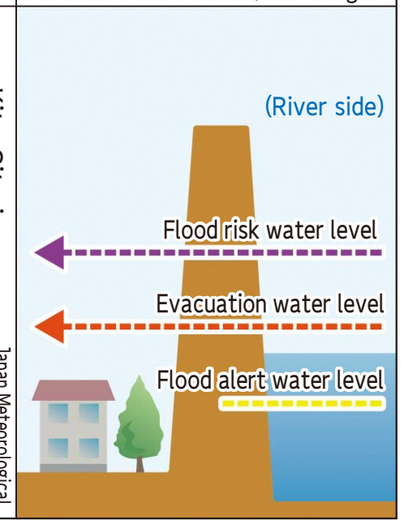
It is important to check evacuation and weather information in case of flood disaster. The weather information communicates danger step by step, and the evacuation information urges people to evacuate when the danger is imminent. This information is important in determining the timing of evacuation, etc.

The relationship among the type of evacuation information, your evacuation behavior

Weather and evacuation information is generally announced and issued as shown in the table below depending on the situation. Evacuation information is not always issued in this order. Even if this information is not issued, please take appropriate actions such as evacuation if you feel danger.

Alert level	Actions to be taken	Evacuation information, etc.	
Alert level 5	A disaster has occurred or is imminent. Take immediate actions to protect lives, such as emergency evacuation indoors (vertical evacuation, etc.).	Emergency safety measures	Kita City issues
<Be sure to evacuate by alert level 4!>			
Alert level 4	Start evacuation of everyone immediately to areas that will not be flooded (evacuation to higher ground, etc.).	Evacuation order	
Alert level 3	The elderly, etc. start evacuation. Others prepare for evacuation.	Evacuation of the elderly, etc.	
Alert level 2	Check evacuation behaviors in preparation for evacuation based on the hazard map.	Advisory	Japan Meteorological Agency announcements
Alert level 1	Watch the weather forecasts, etc. and increase preparedness for disasters.	Early warning information (possibly alert level)	

Water level used as the standard for announcing and issuing evacuation information, etc. (image)



▶ When the evacuation of the elderly, etc. (alert level 3) is issued, the elderly or those who need time to evacuate start evacuation!

▶ When the evacuation order (alert level 4) is issued, everyone starts evacuation!

▶ In case of emergency safety measures (alert level 5), take immediate action to protect lives!

Precautions for evacuation behaviors in case of large-scale flood disaster

● Multiple municipalities simultaneously affected

If the Arakawa River floods due to a large typhoon, it is expected that not only Kita City but also other municipalities in the Arakawa River basin will be affected at the same time, and many residents are expected to cross administrative boundaries and evacuate to higher ground at the same time.

● Occurrence of traffic congestion

If many residents evacuate by vehicles at the same time, there will be traffic jams on narrow roads, tunnels under elevated tracks, bridges to cross rivers, etc. and it may take a considerable amount of time to pass through. To prevent it, evacuate early before the traffic congestion occurs, or evacuate by walking or public transportation whenever possible. If possible, only people requiring special care should use vehicles when evacuating.

● Possible planned service suspension of public transportation

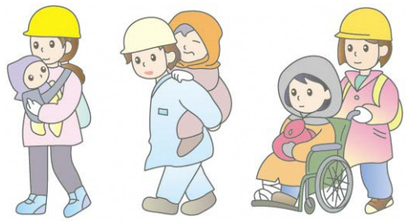
When a large typhoon, etc. is expected to approach, railway and other public transportation may be in planned service suspension. Railways running underground may also suspend operation of stations and close the aboveground entrances and exits of stations. When you evacuate, pay attention to the operation information of the railway company.

Guideline for evacuation

● Collect accurate information and evacuate voluntarily

- Pay attention to weather and evacuation information.
- Pay attention to the intensity and amount of rain.
- Voluntarily evacuate if you feel danger.

● Assist in the evacuation of the elderly, etc.



- The elderly, children, and sick people, etc. should evacuate early.
- Help the elderly, etc. in your neighborhood to evacuate.

● Wear comfortable clothes, and do not evacuate alone

- Use a rucksack to carry items to keep your hands free.
- Put on running shoes rather than rain boots.
- Call out to each other with your neighbors and members of your local voluntary organization for disaster prevention.

● Risk of underground facility

- If you are in an underground facility, it is difficult to understand the situation outdoors.
- When water floods into underground, you cannot climb up stairs.
- You cannot open a door due to water pressure.
- When an underground facility is inundated, the lights are extinguished and you will not be able to use elevators.

● Immediately evacuate

- Evacuation order and other warnings are issued when danger impends.
- Follow the instructions of Kita City (municipality), etc.

● In case you have to walk through a flooded area to evacuate

- Inundation water (especially in flood water) is brown and cloudy, so it is difficult to know the danger under the water.
- Check for hidden objects with a cane, etc. while walking.

● Refrain from evacuating by car, for the sake of those who really need cars for evacuation

- The car breaks down due to inundation, and the door cannot be opened.
- The car cannot move forward due to traffic congestion.
- The car disturbs the traffic of emergency vehicles.
- If possible, use public transportation so that people requiring special care can use vehicles for evacuation.

● If you fail to escape

- Flood water is powerful, and it is difficult to walk even in knee-deep water (Avoid moving far away if you judge it to be dangerous).
- If you fail to escape and danger impedes, you should evacuate to the upper floors in a solid building nearby.

Sanitary measures and disinfection methods of flooded houses

When a house is flooded by heavy rain, flood, or river flooding, etc., bacteria and mold are likely to grow, and there is a risk of infection. Cleaning and drying are most important actions to prevent infection. Clean with appropriate procedures and disinfect as necessary. In principle, outdoor disinfection is unnecessary.

❶ Prepare tools and protective equipment for the work

It will be helpful in case of emergency if you prepare items that can be utilized at home on a regular basis. The first thing is to work in safe clothing and prevent injuries.

❷ Clean thoroughly before disinfection

1. Wear goggles and a mask to protect your eyes and mouth from dust
2. Wear gloves and shoes with thick soles to prevent injuries during cleaning
3. Open the doors and windows for proper ventilation
4. Remove the sludge completely and dry thoroughly

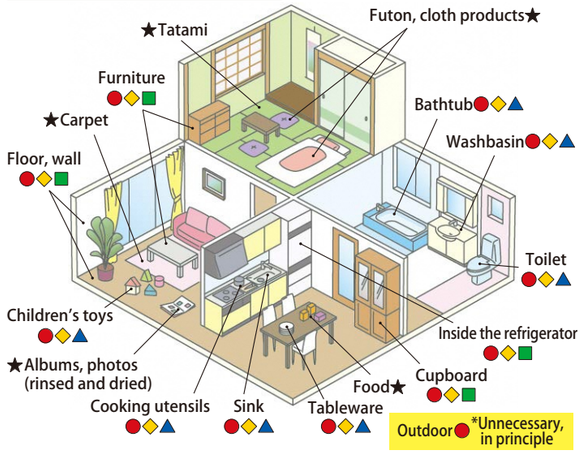
❸ Use the appropriate disinfectant solutions for each item

Sodium hypochlorite, ethanol for disinfection, and benzalkonium chloride are used as disinfectant solutions, each of which has a suitable concentration for use. Please read the precautions carefully before adjusting the concentration. Put the disinfectant solutions in a cloth or soak directly. Avoid spraying, as it may be inhaled.

Red●: Benzalkonium chloride 0.1%
Yellow◇: Ethanol for disinfection
Blue▲: Sodium hypochlorite 0.02%
Green■: Sodium hypochlorite 0.1%
Black★: Cannot be reused or disinfected (disposal is recommended)

Cash, passbook
After washing with water, consult with financial institutions

Automobiles, electrical appliances
Do not start the engine, disconnect power



❹ Dry well

After cleaning and disinfection, thorough drying is necessary. Dry well with the intention of taking at least a month.

[Inquiries about sanitary measures and disinfection methods]
Environmental Sanitation Section, Living and Health Division, Kita City Healthcare Center, Telephone: 03-3919-0720

■ Work clothes and tools to be prepared

☐ Shovel ☐ Broom ☐ Sponge, toothbrush
☐ Bucket ☐ Dustcloth, towel ☐ Dustpan
☐ Deck brush ☐ Scrub brush ☐ Disinfectant solutions

■ Simple method for making disinfectant solutions and cautions

Commercial disinfectant solutions	Concentration for use	How to make
10% benzalkonium chloride (inverted soap)	● 0.1%	Dilute 10 mL of disinfectant solutions with 1 liter of water (diluted 100 times)
5-6% sodium hypochlorite (household chlorine bleach)	▲ 0.02%	Dilute 5 mL of disinfectant solutions with 1 liter of water (diluted 200 times)
	■ 0.1%	Dilute 20 mL of disinfectant solutions with 1 liter of water (diluted 50 times)
Ethanol for disinfection	◇ 76.9-81.4%	Use as is

*A PET bottle cap = 5 mL

[Precautions for use]

◎Put the disinfectant solutions in a cloth or soak directly. Avoid spraying, as it may be inhaled.
◎Sodium hypochlorite should be used as much as possible in case of severe contamination or being flooded for an extended period.
◎If sodium hypochlorite cannot be used because of possible fading or corrosion, etc., use other disinfectant solutions.
◎Do not mix or prepare disinfectant solutions in advance. Open windows and doors during the work.
◎Read the precautions for use carefully before use.

◆ Photographing and preservation of the disaster affected situations

If a house, etc. is damaged by wind and flood disaster, etc., take pictures of the damage to the extent possible before cleaning up or repairing. This is useful for obtaining disaster-victim certificates, etc.

Storm Surge Hazard Map

This map shows the flood risk areas, flood depth, duration of inundation, evacuation sites, etc. in the case of river flooding due to the effect of storm surge along the Tokyo Bay coast (Tokyo section). It reflects the map of the storm surge flood risk areas (Tokyo) associated with the assumed maximum storm surge specified by the Flood Control Act.

*See page 5 for the cause of storm surge.

Evacuation behaviors in the flood risk areas

Areas, etc.	Evacuation behaviors
Common to all flood risk areas	In the case of an approach of a large typhoon that is expected to cause a storm surge, the risk of the Arakawa River flooding will also be high. Therefore, in principle, evacuation behaviors will be the same as those taken in the event of flooding of the Arakawa River. *See page 8 for evacuation behaviors in case of flooding of the Arakawa River.

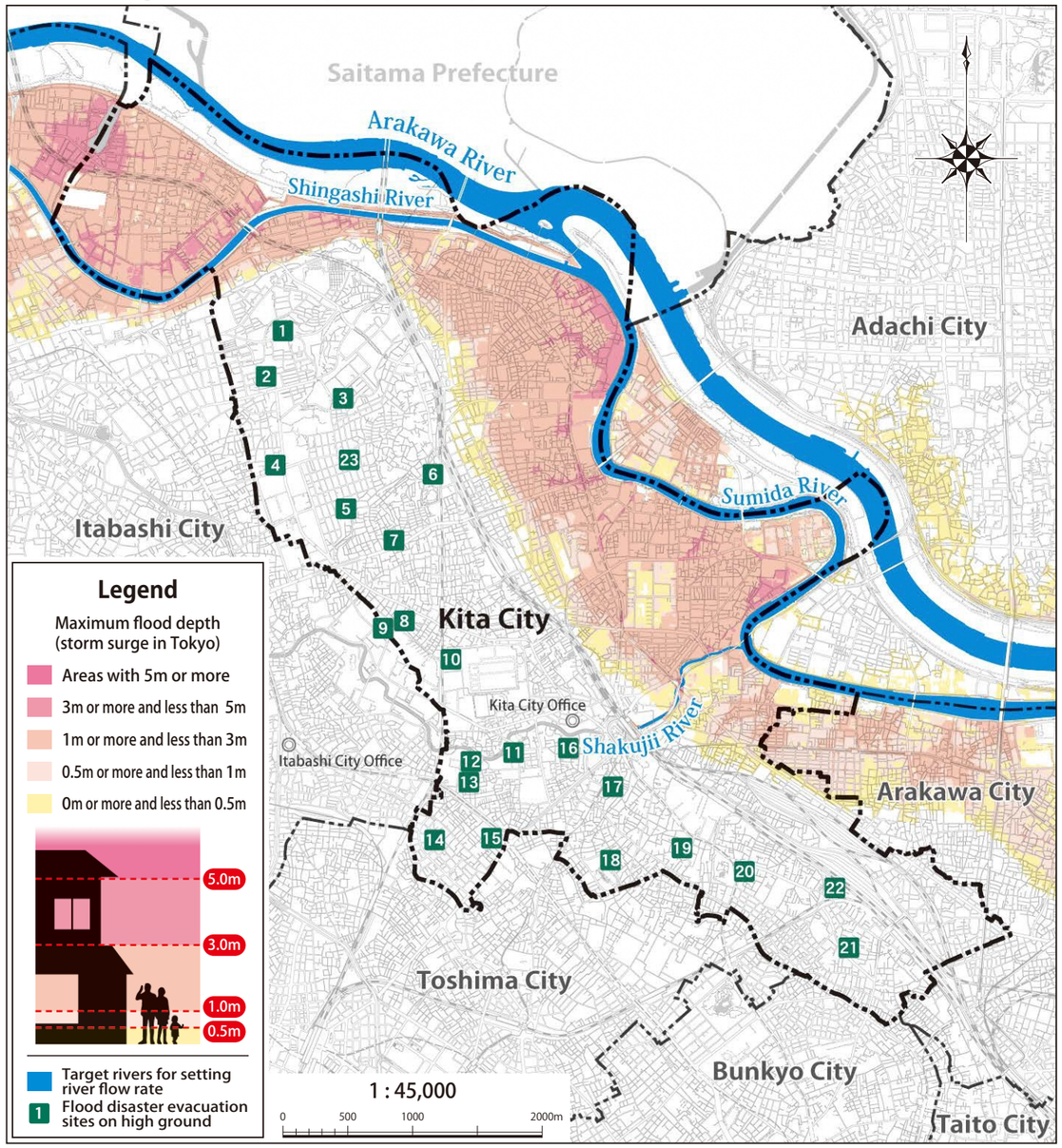
Flood disaster evacuation sites on high ground

No.	Facility name	Location
1	Kirigaoka J.H. School	2-6-11 Kirigaoka
2	Kirigaokasato Elem. Sch.	1-10-23 Kirigaoka
3	Akabanedai Nishi Elem. Sch.	2-1-34 Akabanedai
4	Inatsuke J.H. School	6-1-4 Akabane-nishi
5	Umenoki Elem. School	2-21-15 Nishigaoka
6	Former Shimizu Elem. Sch.	4-5-17 Jujo-nakahara
7	Oji Daisan Elem. School	5-2-3 Kami-jujo
8	Oji Daigo Elem. School	2-18-17 Kami-jujo
9	Former Fujimi J.H. School	3-1-25 Kami-jujo
10	Jujo Fujimi J.H. School	1-9-33 Jujodai
11	Takinogawa Momiji Elem. Sch.	3-72-1 Takinogawa
12	Takinogawa Koyo J.H. Sch.	5-55-8 Takinogawa

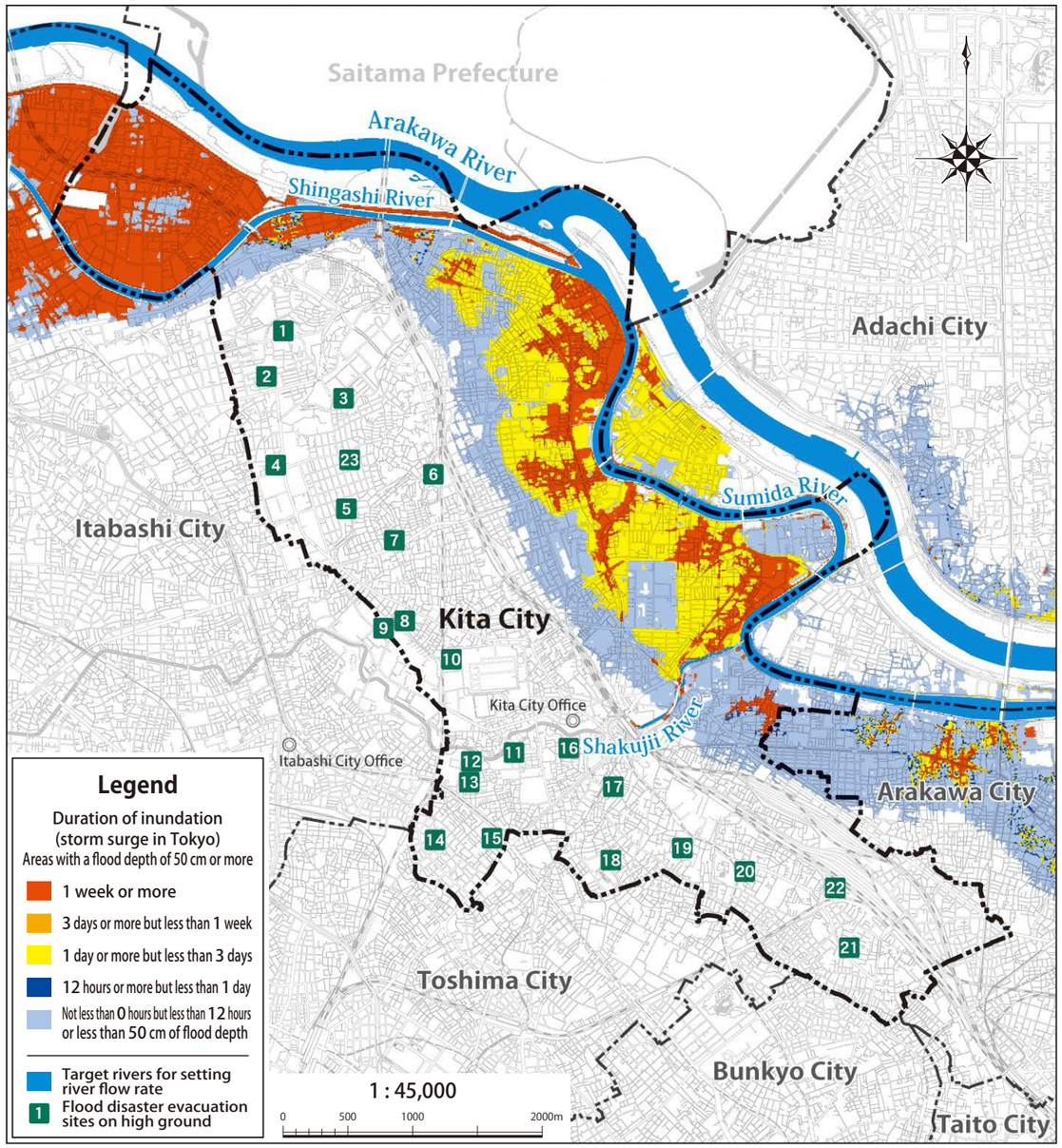
No.	Facility name	Location
13	International French School in Tokyo Annex	5-44-15 Takinogawa
14	Yabata Elem. School	7-12-17 Takinogawa
15	Takinogawa Daini Elem. Sch.	6-19-4 Takinogawa
16	Kita City Office, Government Office for Takinogawa	2-52-10 Takinogawa
17	Takinogawa Daisan Elem. Sch.	1-12-27 Takinogawa
18	Nishigahara Elem. School	4-19-21 Nishigahara
19	Asuka Junior High School	3-5-12 Nishigahara
20	Takinogawa Elem. School	1-18-10 Nishigahara
21	Tabata Elem. School	5-4-1 Tabata
22	Former Tabata J.H. School	6-9-1 Tabata
23	Nishigaoka Elem. School	1-12-14 Nishigaoka

As of December 1, 2023

Storm Surge Hazard Map (flood depth)



Storm Surge Hazard Map (inundation duration time)



About sediment disasters

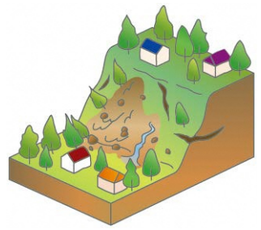
● Types of sediment disaster

There are three types of sediment disasters: debris flows, landslides, and steep slope failures. Most sediment disasters occur suddenly due to typhoons, heavy rains, and long rains during the rainy season, etc. During long or heavy rains, a large amount of water seeps into the ground, and the greater the amount, the weaker the resistance of the soil on the slope, increasing the risk of disaster.

The only sediment disaster that may occur in Kita City is the steep slope failures.

Steep slope failure

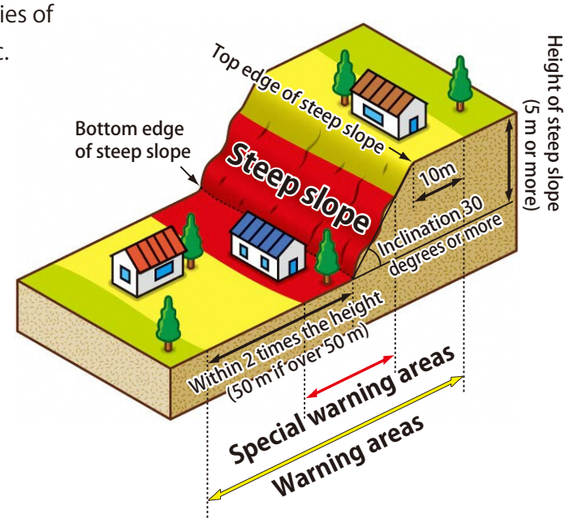
When a slope suddenly collapses due to strong rainfalls, etc., it is called a steep slope failure. It happens suddenly and collapses instantly, so many people fail to escape and the death rate is high.



● Sediment disaster warning area, Sediment disaster special warning area

Sediment disaster warning area (yellow zone)

Areas where there is a risk of harm to the lives or bodies of residents, etc. in the event of a steep slope failure, etc.



Designation criteria

- Areas with inclination 30 degrees or more and a height of 5 m or more
- Areas within a horizontal distance of 10 m from the top edge of a steep slope
- An area within 2 times the height of the steep slope (50 m in the case of exceeding 50 m) from the bottom edge of the steep slope

*Number of sediment disaster warning areas: 95

Sediment disaster special warning area (red zone)

Areas where there is a risk of damage to buildings and significant harm to the lives or bodies of residents, etc. in the event of a steep slope failure, etc.

Designation criteria

Within a sediment disaster warning area, an area where the force applied to buildings due to the movement of soil and stones, etc. associated with the steep slope failure, etc. exceeds the level which causes significant harm to the lives or bodies of residents, etc.

*Number of sediment disaster special warning areas: 70

● Evacuation behaviors during sediment disasters

You should regularly check the disaster risk of where you live, the place to evacuate, and the safe evacuation route so that you can take evacuation behaviors safely in case of emergency. It is also very important to make your own decision to evacuate based on weather information (even if no evacuation order, etc. has been issued) before heavy rain.

Alert level	Evacuation information	Target	Evacuation behaviors
Alert level 3	Evacuation of the elderly, etc.	People requiring special care	[Evacuation] Move to a safe place outside of the sediment disaster warning area. Evacuate to flood disaster evacuation sites set up near sediment disaster warning areas, or to the homes of relatives or acquaintances in safe places if time allows.
Alert level 4	Evacuation order	All residents	
	<Be sure to evacuate by alert level 4!>		
Alert level 5	Emergency safety measures	All residents	[Actions to protect lives] Move quickly to a place as far away from the sediment disaster warning area as possible (a nearby solid building or a room as far away from the cliff as possible).

*Evacuation information is not always issued in this order. Please be careful, as it will change depending on weather conditions.

◆ What is sediment disaster warning information?

In the situation where a heavy rain warning (sediment disaster) has been announced, when the risk of sediment disaster occurrence increases further, this information is jointly announced by the Japan Meteorological Agency and the Tokyo Metropolitan Government by specifying the target municipalities.

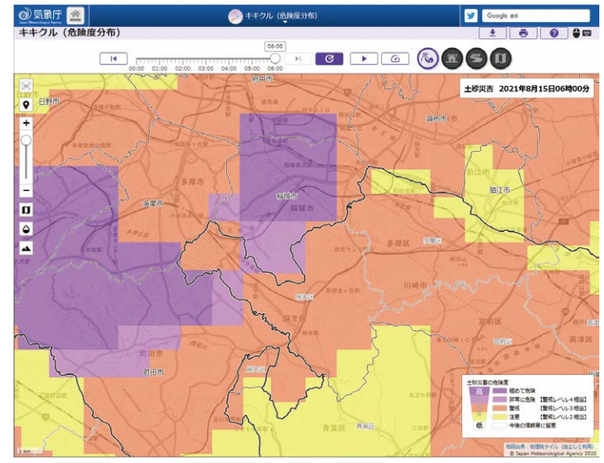
*Sediment disaster warning information corresponds to alert level 4.

• What is sediment disaster KIKIKURU (danger level distribution for heavy rain warning (sediment disaster))?

Sediment disaster KIKIKURU (danger level distribution for heavy rain warning (sediment disaster)) is information that shows the increase in the risk of sediment disaster occurrence due to heavy rain in five levels for each 1 km square area (mesh) on a map using colors. This information is constantly updated every 10 minutes. When a heavy rain warning (sediment disaster) or sediment disaster warning information, etc. is issued, the sediment disaster KIKIKURU (distribution of the danger level of a heavy rain warning (sediment disaster)) allows you to understand where the danger level is increasing.

*You can check KIKIKURU through the QR code below or the website of the Japan Meteorological Agency.

* "QR code" is a registered trademark of DENSO WAVE INCORPORATED.



https://www.jma.go.jp/bosai/risk/

◆ What is a heavy rain special warning?

A heavy rain special warning is issued when typhoons or torrential rains are expected to cause heavy rains with rainfall amounts once in several decades level. Special precautions are clearly indicated in the title and announced as "heavy rain special warning (sediment disaster)," "heavy rain special warning (flood disaster)" or "heavy rain special warning (sediment disaster, flood disaster)."

*Heavy rain special warning corresponds to alert level 5.

Sediment Disaster Hazard Map

The separately published "Kita City Sediment Disaster Hazard Map" includes enlarged maps for each area. Please use it as needed.
http://www.city.kita.tokyo.jp/bosaikiki/bosai/documents/documents/dosya-zisyu.html

Alert level	Evacuation information	Target	Evacuation behaviors
Alert level 3	Evacuation of the elderly, etc.	People requiring special care	[Evacuation] Move to a safe place outside of the sediment disaster warning area. Evacuate to flood disaster evacuation sites set up near sediment disaster warning areas, or to the homes of relatives or acquaintances in safe places if time allows.
Alert level 4	Evacuation order	All residents	
<Be sure to evacuate by alert level 4!>			
Alert level 5	Emergency safety measures	All residents	[Actions to protect lives] Move quickly to a place as far away from the sediment disaster warning area as possible (a nearby solid building or a room as far away from the cliff as possible).

Legend

- Sediment disaster special warning area
- Sediment disaster warning area
- ① Flood disaster evacuation sites

Name of town and street	Sediment disaster warning area	Sediment disaster special warning area	Area No. (KO■■) *The two-digit number in the table below will be entered ■■
Oji 1-chome	○	○	25,85
Oji-honcho 1-chome	○	○	84,85,86,90
Oji-honcho 2-chome	○	○	24,83,84
Kishimachi 1-chome	○	○	24,82,83,84,85
Kishimachi 2-chome	○	○	74,75,76,77,78,79,80,81,82
Naka-jujo 1-chome	○	○	74,75,76,77,78,79,80,81,82
Naka-jujo 2-chome	○	○	72
Naka-jujo 3-chome	○	○	69,70,71,72
Naka-jujo 4-chome	○	○	66,67,68
Jujo-nakahara 4-chome	○	○	63,64,65
Kami-jujo 5-chome	○	○	62
Nishigaoka 2-chome	○	○	57,58,59,60,62
Akabane-nishi 1-chome	○	○	13,14,39,45,46,47,48,49,50,51,52,53,54
Akabane-nishi 2-chome	○	○	16,17,18,19,20,55,56
Akabane-nishi 3-chome	○	○	21,22,56,60,61,63,65
Akabane-nishi 4-chome	○	○	38,43,44
Akabane-nishi 5-chome	○	○	15,37
Akabanedai 1-chome	○	Not applicable	39,40
Akabanedai 2-chome	○	○	37,38
Akabanedai 3-chome	○	○	11,12,34,35,36,40
Akabanedai 4-chome	○	○	03,07,08,09,10,28,29,30,31,32,33
Akabane-kita 1-chome	○	○	01,02,03,30,32,33
Akabane-kita 2-chome	○	○	04,05,27,28,29,31
Akabane-kita 3-chome	○	○	04,05,27,31
Kirigaoka 2-chome	○	○	06
Takinogawa 2-chome	○	○	89,90
Takinogawa 4-chome	○	○	87,88
Takinogawa 5-chome	○	Not applicable	88
Nishigahara 1-chome	○	Not applicable	93
Nishigahara 2-chome	○	○	26,91,92
Tabata 1-chome	○	○	96,97,98,99
Tabata 3-chome	○	Not applicable	95
Tabata 4-chome	○	Not applicable	94

*Sediment disaster warning area and sediment disaster special warning area are not applicable to other towns and streets

○: Applicable

List of flood disaster evacuation sites (flooding of the Shakujii River/sediment disaster)

No.	Facility name	Location
①	Horifune Elem. School	2-11-9 Horifune
②	Meio Junior High Sch.	6-3-23 Oji
③	Takinogawa Koyo J.H. Sch.	5-55-8 Takinogawa
④	Daiyon Iwabuchi Elem. Sch.	3-24-23 Akabane
⑤	Umenoki Elem. School	2-21-15 Nishigaoka
⑥	Fukuro Elem. School	2-15-3 Akabane-kita
⑦	Akabanedai Nishi Elem. Sch.	2-1-34 Akabanedai
⑧	Former Shimizu Elem. Sch.	4-5-17 Jujo-nakahara
⑨	Tabata Elem. School	5-4-1 Tabata
⑩	Jujodai Fureai-kan Community Hall	1-2-18 Naka-jujo
⑪	Kirigaoka J.H. School	2-6-11 Kirigaoka
⑫	Kita City Disaster Prevention Center	2-1-6 Nishigahara

1 : 25,000
0 500 1000m

My Timeline (My Advance Disaster Prevention Action Plan)

My Timeline is an evacuation action plan prepared in advance in case of flood disaster. The goal is to enable safe evacuation by organizing in advance what to do at what timing when a disaster occurs. Please create your own timeline.

◆ My Timeline Extension Leader Development Project

In order to promote My Timeline in the community, Kita City has been recruiting and certifying My Timeline extension leaders among citizens since fiscal 2019. Together with the certified extension leaders, Kita City provides "My Timeline Creation Courses" to teach citizens how to create My Timeline and knowledge of flood disaster.

My Timeline Creation Course

Weather information Evacuation information	Alert level 1 Early warning information	Alert level 2 Advisory	Alert level 3 Evacuation of the elderly, etc.	Alert level 4 Evacuation order	Alert level 5 Emergency safety measures
My and my family's behavior					
Example entry	・Check weather information ・Contact relatives at the evacuation destination	・Check items to be taken in case of emergency	・Confirm the operation status of public transportation	・Confirm the opening status of evacuation sites	・Take people requiring special care who cannot evacuate on their own to an evacuation site in cooperation with neighbors ・Everyone evacuate to ○○○	・In case of failing to escape, evacuate to the upper floors of the apartment building

● List of contacts in daily living

Administrative organs	Kita City Office	03-3908-1111
	MLIT Arakawa- River Lower Reach Work Office	03-3902-2311
	6th Construction Office, Bureau of Construction, TOKYO METROPOLITAN GOVERNMENT	03-3882-1152
Police & Fire Stations	Oji Police Station	03-3911-0110
	Akabane Police Station	03-3903-0110
	Takinogawa Police Station	03-3940-0110
	Oji Fire station	03-3927-0119
	Akabane Fire Station	03-3902-0119
	Takinogawa Fire Station	03-3916-0119
Lifeline management organizations	Kita Office, Bureau of Waterworks, Tokyo Metropolitan Government	03-5963-6030
	Tokyo Metropolitan Bureau of Sewage Western Area No. 2 Office	03-3969-6490
	NTT East-Minami Kanto	0120-444-113
	TEPCO Energy Partner, Incorporated	0120-995-006
	Customer Center, TOKYO GAS	03-3344-9100

Expected disaster: ☐Arakawa River flooding m
Assumed flood depth ☐Shakujii River flooding m
☐Other rivers ( ) m
☐Storm surge m
☐Sediment disaster

Our evacuation destination:

Contact information of family and relatives, etc.

Name	Telephone No., etc.	Workplace, school, etc.

Creation tips

- Is there enough time to evacuate?
- Is there a risk of disaster at the evacuation site?
- Are you prepared with the necessary belongings?
- Are you prepared to get disaster prevention weather information and evacuation information?
- Are you in contact on a regular basis with your relatives and acquaintances who will be the evacuation destination?
- Do you know the schedule of planned suspension of public transportation?

◆ When disaster approaches,

- Check weather information frequently
- Check the water level of the river
- Check the opening status of evacuation sites on Kita City's website
- Confirm evacuation information and understand the risk of disaster occurrence
- Be ready to evacuate at any time

*See page 12 for how to obtain this information
See page 24 for what to bring for evacuation

Tokyo Metropolitan Government's "Disaster Prevention Information Website" provides videos on how to create My Timeline, and you can create a digital version of My Timeline.
Tokyo Disaster Prevention Information Website:https://www.bousai.metro.tokyo.lg.jp/mytimeline/

Items to be taken in case of emergency

In an emergency, food and other items needed for evacuation may not be available. You should prepare them on a daily basis so that you can take them with you when you evacuate. Kita City prepares stockpiled food and household goods, but the number is limited. We appreciate that as many citizens as possible bring their necessary items with them when evacuating.

● Check list of items to be taken in case of emergency

Items	Checked date		
☐Emergency food (hardtack, canned food, retort food, etc.)			
☐Drinking water, a water flask			
☐Portable radio (and spare dry batteries)			
☐Flashlights (and spare dry batteries and bulbs)			
☐Helmets (or disaster prevention hoods)			
☐Knife, can opener, disposable chopsticks, cling film			
☐Tissues, wet tissues			
☐Towels, plastic bags, work gloves, cigarette lighters			
☐Spare clothes (outerwear, underwear, socks, etc.)			
☐Rain wears or umbrellas (rain wears are desirable)			
☐Sanitary products, paper diapers, powdered milk, baby bottles			
☐First aid kits and medicines (ointment, adhesive plaster, antipyretic, cold medicine, digestive medicine, eye lotion, etc.)			
☐Household medicines, drug history handbooks			

Items	Checked date		
☐Valuables (passbook, seal impression, a cash card, etc.) *Keep a copy or a list of your passbook, cash card, and other valuable items.			
☐Cash (including coins)			
☐A copy of your (latest) health insurance card, driver's license			
☐Contact information of your family/relatives, family doctors, etc.			
☐Mobile phones, a battery charger, mobile battery			
☐Eyeglasses, false teeth, toothbrush and toothpaste kit			
☐Infectious disease control supplies (masks, disinfectant solutions, thermometer)			
☐Portable toilets			

● These items are also necessary

Items to be prepared in a family with babies and infants

Powdered milk, baby bottles, baby foods, spoons, paper diapers, clean cotton, a baby holder, bath towels or baby blankets, gauze or handkerchief, buckets, plastic bags, soaps, etc.

Items to be prepared in a family with a pregnant mother

Absorbent cotton, gauze, *sarashi* cotton, T-belt, clean cotton and items for newborns, tissues, plastic wrapping cloth, maternity record book, newspaper, soaps, etc.

Items to be prepared in the family with persons requiring special care

Extra clothes, paper diapers, tissues, physical disability certificate, spare aids, household medicines, etc.

Disaster Messaging Hotline "171"

During a disaster, the telephone connection becomes bad. When you call "171," you can record and replay messages.

Call 171

Record — To leave a message
Press 1 → Dial telephone number, mobile phone number, etc. of the disaster-affected area (*Please dial from the area code.) → Leave a message

Play — To replay a message
Press 2 → Dial telephone number, mobile phone number, etc. of the disaster-affected area → Replay a message

◆ Message board for disaster (Web 171, etc.)

Message board that enables registration/viewing of messages by using a mobile phone, smart phone, PC, etc. in the case of a disaster, etc.
NTT East Corp. https://www.web171.jp/
Besides, there are disaster message board services provided by each cell phone company. Regarding how to use it, please confirm each company's website, etc.

Issued by Kita City, Rivers Section, Roads and Parks Division, Civil Engineering Department,
1-15-22 Oji-honcho, Kita-ku, Tokyo, Tel.: 03-3908-9213
Disaster Prevention and Crisis Management Division, Crisis Management Office, Tel.: 03-3908-8184
Manufacturer: Kokudochizu Co., Ltd. 2-12-4 Nishiochiai, Shinjuku-ku, Tokyo March 2024
VEGETABLE OIL INK
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Publication Registration No.: 5-1-050