How to prepare for a flood with this booklet

Learn about flood risks

STEP 1

Read this booklet to find out what happens when floods occur in Sumida City and what you can't do during a flood. This section also explains how to interpret the flood hazard maps.



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Figure out how you'll evacuate

step 2

Think about when, where and how you'll evacuate if a flood happens. Find out what you'll need in an emergency and what to do if a flood occurs in Sumida City.



Make an evacuation timeline (My Timeline)



Make an evacuation timeline (My Timeline) based on what you have found out in steps 1 and 2.



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Find out about community measures



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There are eight rivers of varying sizes in Sumida City, including the Arakawa River and the Sumida River. Sumida City is low-lying, with a large area at sea level (lower than the water level at high tide).

If the Arakawa River floods, a large area of Sumida City could end up underwater, which will cause severe damage.

Rivers in Sumida Citv Saitama Pref. Iwabuchi Floodgates Tokyo Sumida City Ueno Sta. Kanda Ri Tokyo Sta. trat Sumida City is surrounded by rivers! That means there's a high risk of

> When the Sumida River reaches a certain level, the Iwabuchi Floodgates upstream are closed to prevent water from the Arakawa River from entering the Sumida River and raising the water level too high.

flooding.



Bureau (Ministry of Land, Infrastructure, Transport and Tourism)

Elevation signs

Sumida City has elevation signs in locations such as schools and parks indicating that location's elevation relative to sea level, so that people in these areas can be aware of the flood risk.









There are 125 elevation signs in Sumida City (as of March 2022). All areas of the city have elevation signs. Scan this QR code to find out the elevation of your neighborhood.

STEP1 2 How floods occur

River floods

A river flood occurs when heavy rainfall raises the level of the river to a height where it crosses or breaks an embankment. This kind of flooding is also called "inundation".

When rain enters the upstream waters of a river, it flows downstream. As Sumida City is located around the downstream area of the Arakawa River, flooding can occur a while after a typhoon. When Typhoon Hagibis struck in 2019, the weather conditions experienced by Tokyo were worst at around 9:00pm on October 12, but the Arakawa River reached its highest level at around 10:00am the next morning.





Video of a flood

This video shows what can happen when the Arakawa River floods.



Fictional documentary: The Arakawa River Flood (subtitled in Japanese) Latest version created March 2021 Source: Arakawa-Karyu River Office (Ministry of Land Infrastructure, Transport and Tourism) and NHK https://www.youtube.com/watch?v=D7RDBi340xY

📕 Storm surges

A storm surge is a phenomenon where a typhoon or low pressure system causes air pressure to decrease and the surface of the sea to be drawn upward while strong winds pull the water inland, causing abnormally high sea levels. When a typhoon makes landfall or comes close to land, sea levels quickly rise, and can cross embankments, sea walls or floodgates.



Rainwater floods

When there is a large amount of rainfall in a short period of time, the rainwater fills drains and waterways too quickly for them to drain, which causes water to overflow. This kind of flooding is called a "rainwater flood".

Be careful during floods like this, as underpasses (areas where a road, etc. is low due to grade separation) and basements can become flooded.



Underpasses might be flooded

Typhoon Hagibis in 2019 caused severe flooding of the Oppe and Toki Rivers, two rivers in the Arakawa River System.

- Flooding in Higashimatsuyama City, Saitama Prefecture on October 30, 2020
- Embankments broke, causing flooding across an around 2,200ha area (around 470 times the size of the Tokyo Dome)
- 2 people died, 2 people were injured and 76 people needed to be rescued
- 129 homes were completely destroyed, 402 were partially destroyed or severely damaged and 239 were partially damaged (592 from above-floor flooding and 124 from underfloor flooding)

If the Arakawa River floods, severe flooding is likely to occur in Sumida City.



Mechanism of a storm surge Source: Created according to the storm surge map on the Japan Meteorological Agency website



STEP1

What happens?

During heavy rain and/or strong wind

It is dangerous to be outside in these conditions. Heavy rain and strong wind may cause you to fall down and injure yourself, and you may be hit by debris such as roof tiles or sign boards.



Video of a flood This video shows how powerful strong wind and heavy rain can be. Prepare for Disasters, Learn from a Video The Danger of Wind and Rain (NHK)



When flooding begins

Underfloor or above-floor flooding may occur. You may be trapped in the building you are in. Sometimes floodwaters are strong enough to wash houses away entirely. Subways may become flooded, making it impossible for subways to operate, and roads may become too flooded to drive. Vital infrastructure underground may be damaged by floodwaters, causing water supplies and electricity to be cut off.

Above-floor flooding



Nishibiwajima Town (now part of Kiyosu City, Aichi Prefecture) Photo from Shonai River Office, Chubu Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism

Nishibiwaiima Town (now part of Kiyosu City, Aichi Prefecture) Photo from Shonai River Office, Chubu Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism

Homes submerged or People trapped in buildings washed away



After flooding of the Honzu River (Kinashi-cho, Takamatsu City, Kagawa Prefecture) Source: Flooding Report 2004, Ministry of Land, Infrastructure Transport and Tourism website

Your electricity may be cut off



What can't you do?

If you wait too long, it will be too dangerous to evacuate

You can't evacuate on foot!

It will be dangerous to walk, as heavy rain makes it difficult to see and strong wind makes it difficult to move.



The water pressure may be too strong to open your door!

If there is a difference of around 20cm or more between the water level outside and the water level inside, the water pressure will make it difficult to open your door.



You may lose vital utilities during prolonged flooding

Your water and/or electricity may be cut off, causing various difficulties—for example, you will be unable to use your TV or computer to get updates, and you won't be able to use your air conditioner.

Never use an elevator during a flood. If the shaft is flooded, the elevator may break down and you may get trapped inside.



Your water may be cut off



You can't evacuate by car!



The engine of your car will stop when floodwater levels reach around 30cm.

Koshigaya City, Saitama Prefecture during the heavy rain that hit the Kanto and Tohoku reg in Sentember 2015

Source : Nakagawa River/Ayase River, Ministry of Land, nfrastructure. Transport and Tourism website

You can't travel by train!

Railways will cancel or suspend services if the wind is too strong to operate trains safely.



Video of a flood See what you can't do during a flood. Prepare for Disasters, Learn from a Video: Don't Underestimate the Strength of Water (NHK) https://www.nhk.or.jp/sonae/douga/ suigai0004.htm



If the Arakawa River floods, almost the entirety of the five cities in the Koto area could be flooded for a long period of time. If this happens, life could be difficult if you stay in this area. We recommend evacuating to a safe place outside the five cities in the Koto area.



*Sumida City, Koto City, Adachi City, Katsushika City and Edogawa City



If Sumida City is part of a large flooded area

You may be trapped inside your home or evacuation site (whether that site is inside or outside Sumida City) by the floodwaters. It may take a very long time for everyone in the city to be rescued.



If flooding lasts over 2 weeks

Be aware that if you're in a crowded evacuation site, life may be difficult (for example, you may not have much privacy) for a long time.

Be aware of what kind of flooding could occur in Sumida City

If the Arakawa River floods, flooding could be over 6m deep in the worst-affected areas. Different areas have different flood risks, so use resources such as the hazard maps to find out your neighborhood's risk level and the risk level in the area where you plan to evacuate. This will help you to evacuate safely.



Source: Kanto Regional Development Bureau (Ministry of Land, Infrastructure, Transport and Tourism website (https://www.ktr.mlit.go.jp/)

What should you do before a flood?

Unlike earthquakes, which strike without warning, it's possible to predict floods based on things like the weather.

Two important things to do before a flood

- **1** Find out as much as possible (weather updates, announcements from the city government, etc.)
- you have personal access to outside the Koto area)

Do you have everything you need to survive if you can't leave your home?



Source: Kanto Regional Development Bureau (Ministry of Land, Infrastructure, Transport and website (https://www.ktr.mlit.go.ip/)

2 Evacuate as soon as possible (stay in an evacuation site or safe place

