

さいたま市 内水ハザードマップ



Saitama City Inland Water Hazard Map 埼玉市内涝灾害预警地图 사이타마시 내수해지 지도

◆内水ハザードマップとは What is Inland Water Hazard Map? 何謂内涝灾害预警地图 啥个啥地 지도란
この内水ハザードマップは、下水道の排水能力を超える大雨によって内水はん流が発生した場合に想定される浸水区域や浸水深等を、浸水シミュレーションにより示したものです。
日頃の備えや避難の際に役立てていただくなど、市民の皆様への自助・共助の促進を目的として作成しました。
このマップの地図画面は、想定される浸水深20cmから5m以上までを6段階で色分けし、25m×25mの正方形で表示しています。
お住まいの地域の浸水深を確認し、安全に移動できるように避難ルートを確認してください。
雨の降り方や土地の形状の状況などにより、浸水区域や浸水深が地図と異なる場合もあるため、複数の避難ルートを考えておきましょう。

This Inland Water Hazard Map shows the inundation area and depth of inundation that can be anticipated in the occurrence of inland water flooding caused by heavy rainfall that exceeds the drainage capacity of the sewerage system, based on inundation simulation.
It was prepared with the aim of promoting self-help and mutual-help among citizens by helping them prepare for everyday needs and evacuation.
On this map's surface, the assumed inundation depths from 20 cm to more than 5 m are color-coded in six levels and indicated by a 25 m x 25 m square.
Please check the depth of inundation in your area and make sure you have a safe evacuation route to move to.
Consider multiple evacuation routes, as the flooded area and depth of flooding may differ from the map due to rainfall and changes in the shape of the land.

本内涝灾害预警地图基于超出下水道排水能力的大雨导致内涝泛滥时，对预测的浸水区域及浸水深等进行浸水模拟试验而制作。
材料本地图旨在提高市民自救及互助水平，为日常生活中的自助、互助做准备。
此地图上以25m×25m正方形区域，将预计浸水深20cm至5m以上的区域分为6个等级，以不同颜色标示。
请确认居住地区的浸水深，以及可移动安全场所的避难路线。
大水区域及浸水深可能随降雨方式及土地形状等因素而发生变化，因此建议制定多条避难路线。
平时应制定多条避难路线，以便在发生紧急情况时，能根据实际情况制定多条避难路线，确保安全撤离。

◆Conditions under which the Inland Water Hazard Map was created
This map was prepared based on a simulation of inundation assuming that the maximum possible rainfall (maximum 153 mm, total rainfall 248 mm) would fall on the entire city of Saitama and the water level in the river to be discharged would be high.
The information reflected in the inundation simulation is made based on topographical information such as ground elevation (based on the Geographical Survey Institute's laser surveying 5m mesh (elevation) approved by the Director of the Geographical Survey Institute of Japan (Use) R 2-He 1206 based on the Survey Act) and reflecting major rivers and sewers in the city.
Furthermore, the information on sewerage storage facilities, pump stations, drainage pump stations, gates, etc. is as of the end of 2020.

◆Cautions for using the Inland Water Hazard Map
Assumed inundation areas and inundation depths may vary depending on the type of rainfall, the shape of the land, and the maintenance situation of rivers and sewers.
Therefore, it does not mean that the areas indicated on this map always get flooded during heavy rains, but rather that even areas not expected to be inundated may be inundated depending on the situation, so please be very careful.
*This map does not take class A rivers overflow (flooding) into account, so please check the latest flood hazard map as well.
*As we do not take reports of inundation information from citizens into account, please check the "Information on Flooding in Saitama City" available at the Information Disclosure Corner in each ward for past inundation information.

このマップで得られる情報
Information available in this map 通过此地图可获得的信息 지도에서 얻을 수 있는 정보

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<https://www.city.saitama.jp/001/006/003/002/001/p078773.html>
April, 2021

1. Mechanism of How Inundation Occurs

(1) Implementation level of Saitama City

Since Saitama City is located inland, rain water flows into class A rivers managed by the national and prefectural governments. However, the amount of rain water discharged is limited depending on the implementation conditions of the rivers to which the rain water is discharged.
As a measure of inundation prevention, Saitama City has implemented rainwater pipes and storm water storage facilities to cope with rainfall of about 56 mm per hour in accordance with the implementation conditions of the rivers where the rain water is discharged.
In addition, Saitama City has elevated its flood control measures for the rivers managed by the City to make floodwater safely flow down in rivers caused by rainfall of about 30 to 50 mm per hour.
However, in recent years, heavy rainfall exceeding the implementation level has occurred frequently due to the effects of climate change, and increased rainwater runoff due to the advancement of urbanization have caused inundation damages in low-lying areas where rain water is easily collected.
Therefore, Saitama City will continue to further inundation prevention measures focusing on the three areas of "urban flooding prevention measures," "comprehensive inundation prevention measures," and "the rainwater runoff control measures."

Mechanism of Inland Flooding (Source: Ministry of Land, Infrastructure, Transport and Tourism (MLIT) website)

Mechanism of River Flooding (Source: Ministry of Land, Infrastructure, Transport and Tourism (MLIT) website)

Various inland flooding

2. Places Prone to Inland Flooding

Sewer trunk lines and waterways are prone to inland flooding because when the water level in rivers rises, sewers and waterways are unable to drain into the rivers.
Low-lying areas are also prone to inland flooding because water tends to be easily collected from the surrounding areas.

2. Information to Protect Life and Property

(1) Evacuation information

Get information corresponding to each alert level ASAP and use it to make decisions on evacuation actions.
Pay attention to the announcements of evacuation information and others from your municipal and judge whether to evacuate or not on your own, even if evacuation information have not been issued.
It is important to evacuate at the alert level 3 or 4. It will be impossible to evacuate because a disaster has already occurred in a situation where the alert level is 5.
If heavy rainfall continues, there is an increased risk of river flooding.

Alert Levels	Situations	Actions to be taken by citizens	Information to encourage actions
5	Occurrence or imminent threat of a disaster	Your life is in danger. Immediately ensure safety!	Emergency safety securement
Evacuate before the alert level reaches 4!			
4	There is high risk of occurrence of a disaster	Evacuate all people from dangerous areas	Evacuation instructions
3	There is a risk of occurrence of a disaster	Evacuate the elderly, etc. from dangerous areas	Evacuation of the elderly, etc.
2	Weather conditions worsen	Confirm your own evacuation behavior	Heavy rain/Flood / Storm surge advisory (Japan Meteorological Agency)
1	There is a risk of worsening weather conditions in the future	Increase preparedness for disasters	Early warning information (Japan Meteorological Agency)

*Implemented from May 20, 2021

(2) Gathering information

Information is sent via both push notifications (notifications sent automatically) and pull notifications (notifications that one gets by themselves). Some push notifications are delivered automatically, while others can be delivered automatically by registering in advance. Pay close attention to weather and river related warnings, and evacuation information; and remain calm, judge and act promptly.

Email Notification

- Emergency Warning E-mail/ Area E-mail
Users of cell phones (NTT Docomo, KDDI/Okinawa Cellular (au), Softbank, and Rakuten Mobile) in the distribution target municipalities can automatically receive the evacuation information delivered from the municipal governments.
- Saitama City Wireless Disaster Prevention System E-mail
You can automatically receive the contents such as the emergency information broadcasted on the Wireless Disaster Prevention System, by registering in advance.
URL <https://www.city.saitama.jp/001/011/015/004/002/p054192.html>
- Disaster Prevention Wireless Telephone Service
The service delivers the evacuation information, etc. to landline phones and faxes for those who do not have cell phones or smartphones and have difficulty using email, etc.
URL <https://www.city.saitama.jp/001/011/015/004/002/p071187.html>

Weather information
You can get information on warnings.
Weather information including the warnings from Saitama City
<https://saitama-city.bosai.info/ui/dashboard>

River water level information
You can get information on the water levels, live cameras, etc. of rivers and sewers.
Ministry of Land, Infrastructure, Transport and Tourism (MLIT) - Information on River Disaster Prevention
<https://www.river.go.jp/portal/#80>

Disaster Prevention Information
You can get hazard map and information on disaster preparedness.
Crisis Management, Disaster Prevention and Weather Information of Saitama City
<https://www.city.saitama.jp/bousai/index.html>

Saitama City Water Level Information System
<https://www.flood-info.city.saitama.jp/JP/index.html>

Flood Hazard Map of Saitama City
<https://www.city.saitama.jp/001/011/015/002/003/p008311.html>

Yahoo Weather app.
<https://weather.yahoo.co.jp/weather/promo/app/>

3. Weather Information

(1) Warnings and alerts issued by the Japan Meteorological Agency

When issuing warnings and alerts, not only the amount of rainfall, but also the amount of rainfall in the upstream area and the time it takes to flow down from the upstream areas are considered. In addition, the warnings and alerts will be continued when there is a risk of a disaster due to the rain infiltrated in the ground.

[Types] [Period of announcements]

Heavy rain special warning	When typhoons or torrential rains are expected to cause heavy rains with precipitation once every several decades.
Heavy rain warning	When heavy rains could cause severe disasters.
Flood warning	When flooding could cause severe disasters.
Record short-time heavy rain information	Heavy rains for a short period of time, which only occurs once every few years, are observed or analyzed when a heavy rainfall warning is issued. *In the case of Saitama City, the amount of rainfall in one hour is 100 mm or more.
Heavy rain advisory	When heavy rains could cause disasters.
Flood advisory	When flooding could cause disasters.

*For more information on the criteria applicable to heavy rainfall and flood warnings, and each rainfall index, please refer to the Japan Meteorological Agency website.

(2) Rainfall guide

We can roughly grasp the amount of rainfall by observing how the rain falls. By knowing the relationship between how the rain falls and the amount of rainfall can help us make decisions to evacuate before the condition becomes dangerous.

Rainfall Intensity (rainfall per hour)	Moderate - heavy (10-20mm)	Heavy (20-30mm)	Very heavy (30-50mm)	Extremely heavy (50-80mm)	Torrential (over 80mm)
Characteristics	Rain showers	Downpour	Coming down in buckets	Raining like a waterfall	Oppressive feeling such as breathing difficulties and feeling frightened.
Impact on people	Rain splashing off the ground wetting your feet.	Get wet even when using an umbrella.	Umbrellas have no effect in the rain.		
Conditions in the inside (of wooden houses)	Conversation can't be heard due to the sound of the rain.		Sleepless night due to the rain.		
Conditions in the outside	Puddles in the ground.	Streets are flooded like a river	Bad visibility due to the rain		
When in a car	Difficult to see even when wipers are on full speed.	Brake fails to work due to a layer of water building up between the tires and the road surface when driving at high speed.	Road conditions are too dangerous to drive.		

This is a guideline for actions to take during heavy rainfall. As the rainfall intensity, geographic features and land use affect the degree of risk in communities so it is important to pay close attention and surrounding situations; and remain calm, judge and act accordingly.

4. Inquiries

5. Precautions When Evacuating

6. Daily Preparations

7. Tell Me, Mr. Nu!

(1) Contacts

Contact details

◆Prepare for Inundation

- Disaster Prevention Measures: Disaster Prevention Division, Department of Risk Management, General Affairs Bureau ☎ 048-829-1126
- Flood Hazard Map: Disaster Prevention Division, Department of Risk Management, General Affairs Bureau ☎ 048-829-1126

◆During an Inundation

- When your property or roads are inundated: Chuo Ward Office ☎ 048-856-1111
- Information on situation of evacuation shelters: General Affairs Division, Department of Daily Life Affairs of Ward Residents, Chuo West Office ☎ 048-840-6013
- Ambulance or Fire Department service required for urgent situations: Fire Bureau ☎ 119

◆After suffering from Inundation damage

- Issuance of Disaster Victim Certificate: General Affairs Division, Department of Daily Life Affairs of Ward Residents, Chuo West Office ☎ 048-840-6013
- Disinfection of flooded roads: Daily Life Support Office, Chuo Ward ☎ 048-840-6026

Useful Contact Methods in times of a disaster

When a large-scale disaster such as a flood or an earthquake occurs, phone calls to the affected areas are concentrated and it becomes difficult to connect. If you are in such a situation, in order to perform confirmation of the safety of family members and acquaintances, or to make contact with evacuation sites smoothly, "the Disaster Message Dial service", which allows users to register messages in "voice form," and "the Disaster Message Board service", which allows users to register messages in "text form," are provided using fixed-line phones, cell phones, and the Internet.

Use of the "Disaster Message Dial 171"

This is a service provided by NTT that allows you to save and play back messages regarding the information such as the safety of your family members in times of a large-scale disaster.

Recording method

Dial 171 To record a message 1

Method of reproduction of recorded message

Dial 171 To playback a message 2

Disaster Prevention Community Development Information Map

Saitama City uses the geographic information system (GIS "Saitama City Map Information") on its website (https://www.sonicweb.esp.jp/saitama_g/), which provides the risk information, etc. on earthquake disasters such as the various disaster prevention maps such as the Flood Hazard Map of class A rivers. You can check the pinpoint and the familiar information on disaster risks by entering your home address.

(2) Disaster prevention memo for my family

My Family's Evacuation Site 1	Family Gathering Place			
My Family's Evacuation Site 2	Contact information in times of a disaster			
Name	Blood type	Phone number	Company / school name	Company / school contact information

Contact information regarding Saitama City Inland Water Hazard Map

- Sewer Planning Division, Sewer Department, Construction Bureau TEL 048-829-1566 FAX 048-829-1975
- River Division, Civil Engineering Department, Construction Bureau TEL 048-829-1585 FAX 048-829-1988
- Disaster Prevention Division, Department of Risk Management, General Affairs Bureau TEL 048-829-1126 FAX 048-829-1978

Inundation may occur suddenly due to localized heavy rainfall so keep in mind to take prompt action.

Walking becomes difficult even at a water depth of about 20 cm depending on the flow of water. It is dangerous for the elderly and children.
If you fall behind, stay in a high place and wait for rescue.

Gather the accurate information and evacuate on your own initiative

- Pay close attention to the latest weather forecast, disaster-related and evacuation information from radio, TV and internet
- Keep an eye out on the how the rain falls and the inundation situation. If you feel there is danger, evacuate on your own initiative.

Pay attention to calls for evacuation

- When danger is approaching, the city hall or fire department may call for evacuation.
- Please evacuate immediately when you hear the evacuation call.

Evacuate in comfortable clothes and in pairs or with more persons

- Keep in mind to wear comfortable clothes and in pairs or with more persons when evacuating.

Assist the evacuation of elderly people etc.

- Those in need, such as elderly people, children, and the handicapped, must evacuate sooner.
- Help those around you to evacuate.

Avoid evacuating by car

Evacuation by car will block emergency vehicles. In addition, driving a car on a flooded road may cause problems with engine or the like, and make it impossible to move. Do not drive on flooded roads unless in extreme cases.
Do not leave your car on the road or riverbank as they hinder flood prevention work.

Use caution in places such as underpasses

There are many multi-level crossing in Saitama City.
It is necessary to avoid underpasses and such in times of inundation especially those that are expected to increase in depth when inundated.

The potential danger of underground space/facilities.

Water flows in at a stretch when the ground level is flooded.
Water may enter through unexpected places such as ventilation holes and windows.
Also, you can't walk up the stairs due to the flowing water.

We don't know the condition outside the basement.
It is necessary to pay close attention to the latest weather forecast while inside the basement it's hard to notice the rain condition and the rapid change of weather. Also, let the people in the basement know if the conditions have changed.

Electrical power may be cut off in times of inundation.
If electrical power is cut off, there will be a blackout and darkness.
And elevators will be out of order.

Can't open the doors due to water pressure
If it is inundated to a certain extent, doors may not open from neither inside or outside.

(1) Advance preparations

Preparedness at buildings

- Clean the ditches and the rainwater basins.
- Avoid placing things such as car step slopes on top of ditches and basins.
- Pick up the things around your building in preparation for flooding.
- Board up glass windows without shutters from the outside in case flying objects enter.
- If there is a risk of flooding, move important household goods to the second floor or a higher, safer place.
- How to make a simple sandbag
- If the water depth is shallow, use household items such as garbage bags, leisure sheets/mats and planters as emergency measures.

(Using Garbage Bags)
Double bag garbage bags, fill with water halfway (leftover bath water is convenient) and place them next to each other without any gaps or space. Putting the water-filled bags inside leak-proof cardboard boxes will increase the strength and makes them stackable.

(Using Leisure Sheets)
Line up filled planters in a row and wrap them in plastic leisure sheets to strengthen the barrier. You can also use water-filled plastic tanks or heavy beer cases instead of planters.

Advance preparations in the Family

- Store water for daily use. (Drinking water should be 3 liters per person per day.)
- Decide the route to the designated emergency evacuation site in advance, and make sure that it is safe to pass through.

(2) Emergency items and stockpiles

In times of a large-scale disaster, it is said to take approximately three days for relief goods to reach the disaster area. For emergency items, select, at minimum, the basic supplies and store them in one place where you can take them out immediately. Also, prepare stockpiles to support you for several days when evacuating at home and emergency items separately until recovery from the disaster. In particular, buy a little more of food and drinking water than usual as a regular basis, and keep in mind the idea of "rolling stock" by repeating daily consumption and buying.

If there are any items particularly necessary corresponding to the family structure, such as the elderly and infants, add them to your emergency or stockpiling list.
Regularly check the storage conditions and expiration dates of emergency items, and replace them with new ones as needed.

Checklist

Water/Foods	Cash/Valuables	Daily necessities	Medical supplies	Sanitary supplies	Others
<input type="checkbox"/> Drinking water <input type="checkbox"/> Emergency food (simple food such as hardtack, canned food, candy, chocolate, etc.)	<input type="checkbox"/> Valuables (passport, seal, etc.) <input type="checkbox"/> Cash <input type="checkbox"/> Driver's license/ Health insurance card	<input type="checkbox"/> Portable radio (spare batteries) <input type="checkbox"/> Flashlight (spare batteries and tubes) <input type="checkbox"/> Candles and lanterns <input type="checkbox"/> Lighter (match) <input type="checkbox"/> Knife, can opener, and bottle opener <input type="checkbox"/> Plastic bags <input type="checkbox"/> Gloves <input type="checkbox"/> Disposable body warmers	<input type="checkbox"/> First aid kit (band aids, antiseptic solution, nutritional supplements) <input type="checkbox"/> Plastic medicine (prescription record)	<input type="checkbox"/> Tissues (wet type also) <input type="checkbox"/> Towels <input type="checkbox"/> Sanitary items <input type="checkbox"/> Masks <input type="checkbox"/> Disinfectant	<input type="checkbox"/> Helmet and disaster hood <input type="checkbox"/> Clothes (top and under)
<input type="checkbox"/> Water (3 liters per day per person) <input type="checkbox"/> Foodstuffs (canned food, instant food, seasonings, soup, etc.)	<input type="checkbox"/> Fuel (tablette stove, solid fuel, spare gas cylinders, etc.) <input type="checkbox"/> Simple tabulators <input type="checkbox"/> (canned food, instant food, seasonings, etc.) <input type="checkbox"/> Plastic wrap, aluminum foil, etc. <input type="checkbox"/> Spare glasses, hearing aids, etc. <input type="checkbox"/> Tools (rope, crowbar, shovel, etc.)	<input type="checkbox"/> Toilettries <input type="checkbox"/> Wet wipes <input type="checkbox"/> Toilet paper <input type="checkbox"/> Simple toilet	<input type="checkbox"/> Blankets <input type="checkbox"/> Toweltees <input type="checkbox"/> Sleeping bags	<input type="checkbox"/> Blankets <input type="checkbox"/> Toweltees <input type="checkbox"/> Sleeping bags	<input type="checkbox"/> Blankets <input type="checkbox"/> Toweltees <input type="checkbox"/> Sleeping bags

*Other things you need to prepare for infection control

(3) Creating My Timeline

"My Timeline" is to make a "disaster prevention action plan" for each resident.
When the water level of a river rises because of the approach of a typhoon, organize the standard disaster prevention actions you will take in the "Saitama City My Timeline" (Create a "My Timeline" in preparation for wind and flood disasters: <https://www.city.saitama.jp/001/011/015/003/003/p063827.html>). Also, check the height of your area on the GIS's website (<https://www.esi.go.jp/>) or Saitama City's website (<https://www.city.saitama.jp/001/011/015/008/p047060.html>). In general, low places tend to accumulate water.

Mr. Nu is going to teach us about this hazard map!

Q1 Are non-colored areas on the hazard map safe?
A1 The hazard map is a colored map that highlights areas which are at high risk of inundation. Since areas with inundation depth of less than 20 cm are not shown, please note that inundation may occur even in non-colored areas.

Q2 What is the difference between this map and the previous inundation (Inland Water) Disaster Prevention Map?
A2 The previous Inundation (Inland Water) Disaster Prevention Maps have been created by considering topographical information based on the information reported by citizens. The new hazard map is created based on a flooding simulation on the assumption that the estimated maximum amount of rainfall (153mm per hour) falls on Saitama City set by the national government.

Q3 What is the difference from the Flood Hazard Map?
A3 The Inland Water Hazard Map shows the areas that are expected to be inundated when rainfall far exceeds the drainage facility capability of sewers. The Flood Hazard Map shows the areas possibly to be flooded when a class A river overflows.

Q4 How should I use the Inland Water Hazard Map?
A4 You should check the areas around your home, school, workplace and the places you pass by regularly to make sure how much flooding is expected to happen and where the high-risk areas are. The Inland Water Hazard Map also includes information on evacuation, preparations to minimize inundation damages, and precautions to be taken during heavy rain. Please read it carefully and prepare for food damages on a daily basis.

Q5 Will you take measures to eliminate inundation in the places that are expected to be inundated in the Inland Water Hazard Map in the future?
A5 The hazard map has been created to promote self help and mutual assistance of evacuation. Therefore, inundation prevention measures will not be developed to eliminate all inundation assumptions on the hazard map, but will be developed in accordance with the development standards of Saitama City.

Q6 Do such large-scale inundation damages actually occur?
A6 As for the estimated maximum amount of rainfall, the estimated maximum amount of rainfall at the present moment is set, using the results of available meteorological observations, etc. based on the current scientific knowledge. In fact, torrential rain in Chiba Prefecture observed 153 mm of rainfall per hour in 1999.

Q7 What is this simulation like?
A7 It is a comprehensive analysis of how the city will be inundated if the estimated maximum amount of rainfall falls on the entire area of Saitama City by reproducing in a computer topographical information such as ground height, drainage facilities such as major sewers and water channels, and the conditions of the rivers to where rain water is discharged or the like.

Q8 This hazard map is created based on the estimated maximum amount of rainfall but there is any possibility that an inundation damage greater than this will occur?
A8 There is a limit to computer performing inundation simulations, which are not able to reflect small steps in sidewalks, small water channels, or clogged rainwater basins, so the simulation results will not be exactly the same as the actual phenomena. Also, please note that inundation areas and depths will change depending on how rain falls, even if the amount of rainfall is same.

Q9 It is difficult to distinguish the colors of the estimated inundation areas. Is there any map easier to see?
A9 According to the national regulations, this color scheme is used for uniformity among local governments and for consideration of people with color blindness, etc. There are no printed maps, but the Saitama City website provides a map with a different color arrangement. You should check it out.

Requests to all local residents from Mr. Nu!
Please read this hazard map on a daily basis and prepare for inundation damages! (**)

For more information, please see the Q & A on our website at <https://www.city.saitama.jp/001/006/003/002/001/p078773.html>