

Flood Hazard Map

To prepare for floods in Toyogawa River (Toyogawa River System)



What is the Flood Hazard Map?

The Flood Hazard Map shows potential flood areas, expected flood depths, and evacuation shelters when danger is imminent in order to help citizens take actions to save their lives if flood occur in the Toyogawa River due to the largest possible heavy rain.

- The range and depth of flooding are the area and depth of flooding where flooding is expected when an embankment breaks down due to the largest possible rainfall. The assumed rainfall is 104.4 mm per day in the Toyogawa River basin.
- The calculation is divided into 25m intervals and the average water depth is calculated among them. So depending on the detailed topography, the actual water depth may be deeper than indicated.
- Check the flood depth in your area, and identify designated emergency evacuation shelters outside of the flooding risk area and safe evacuation routes.

Possible Disasters

- In Shinshiro City, during heavy rainfall, river flooding and sediment disasters can be expected. This hazard map can be used when expecting floods due to river flooding of Toyogawa River.
- Although this hazard map does not assume that flooding inside an embankment will occur when rivers and waterways exceed the drainage capacity due to short-term heavy rainfall, there is a possibility of flooding inside when there is concern about flooding due to river flooding.
- If heavy rain lasts for a long time, the risk of sediment disasters increases. As for sediment disasters, check the degree of danger of your area on the Sediment Disaster Hazard Map.

River Flooding

Torrential rainfall caused by typhoons and heavy rains over long periods of time can cause floods, with river water breaking the river embankments or overflowing from the river, as a large amount of water flows across the embankment onto agricultural land and houses on land adjacent to rivers can be seriously damaged in a short time, and the possibility of human damage is also increased.



Inundation Inside an Embankment

The water in the land where people are protected by embankments is called "inland water". Heavy rains can make it impossible for rainfall to drain simply by waterways and sewers. Also, when the tributary joins the main river, drainage becomes impossible due to the rising water level of the main river, and residential areas and roads are flooded in river time, and the possibility of human damage is also increased.



Sediment disaster

Sediment disasters are triggered by continual rainfall or torrential rainfall, and include debris flow, steep slope collapse, and landslides. Sediment disasters can have devastating effects on lives and property. For more information, see the "Sediment Disaster Hazard Map".



Gather Information and Make a Cool-headed Decision

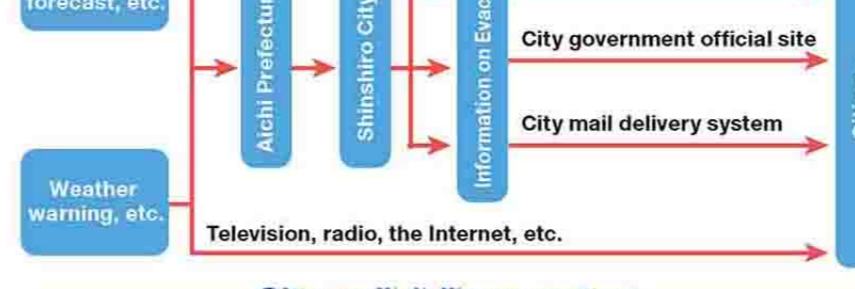
How to get information

Typhoons and heavy rain are disasters that can be predicted to some extent. Get the information you need to be able to take the right action in case of an emergency. When warnings related to weather and rivers are issued, use the Internet, radio, TV, etc. to obtain and use accurate information in real time.

- Weather warnings and advisories: <http://www.jma.go.jp/jma/>
- High Resolution Precipitation Nowcasts: <http://www.jma.go.jp/gri/gri/hrsnowcast/>
- High Resolution Precipitation Nowcasts: <http://www.jma.go.jp/gri/gri/hrsnowcast/>
- Disaster prevention information for rivers by Ministry of Land, Infrastructure, Transport and Tourism: <http://www.mlit.go.jp/river/>

Information transmission paths

Information on evacuation is transmitted to citizens via a transmission route as shown in the figure.



Shinshiro City Emergency Response Headquarters
TEL. 0536-22-0085
(Available only when the Emergency Response Headquarters is set up)

Weather warning and evacuation information and appropriate actions that citizens should take

Please pay attention to evacuation advisories from municipalities and judge whether to evacuate or not on your own. Even if evacuation advisories have not been issued. It is important to evacuate at the alert level 3 or 4, as in a situation where the alert level is 5 it will be impossible to evacuate due to a disaster.

Alert level	Actions to be taken by citizens	Information from the Shinshiro City government	Warnings, etc.	Minimum time from Meteorological Agency to emergency response	Designated river flood forecast
5	A disaster has already occurred and the best action to protect your lives should be taken	Disaster occurrence information (Note: issue as far as possible)	Heavy rain Special warning	Hazard distribution	Information on flooding
4	When "extremely dangerous" (at least people's lives) (The "Hazard distribution" (extremely dangerous) is issued, evacuation must be completed before the disaster occurs)	Evacuation order (emergency) (Note: issue as far as possible)	Landslide alert information	Extreme risk	Information on potential flood hazards
3	Evacuate promptly (Evacuate to a safe area if you have a choice of evacuation sites)	Evacuation advisory	Heavy rain warning (warning grade)	Warning (warning grade)	Information to provide flood warning
2	Check the evacuation actions with hazard maps, etc. (Check dangerous areas and evacuation routes)	Heavy rain advisory (advisory grade)	Heavy rain advisory (advisory grade)	Note (advisory grade)	Information to call attention to flooding
1	Be on higher alert for disasters	Early warning information (Possibility of warning grade)	Early warning information (Possibility of warning grade)	Note (advisory grade)	Information to call attention to flooding

- Heavy rain (landslide) emergency warning** (Much higher risk than "Warning")
Will be announced when typhoons or torrential rains are expected to cause heavy rains with precipitation once every several days, and when heavy rains are expected to occur once every several days. There is a high possibility of landslides and serious disasters may occur.
- Heavy rain/flood warning**
Will be announced when heavy rains could cause flooding disasters and serious disasters.
- Heavy rain/flood advisory**
Will be announced when heavy rains could cause flooding disasters.
- Heavy rain/flood advisory**
Will be announced when heavy rains could cause flooding disasters.

Legend

- Expected Flood Depth: 0.5-1m, 1-2m, 2-3m, 3-4m, 4-5m, 5-6m, 6-7m, 7-8m, 8-9m, 9-10m, 10-15m, 15-20m, 20-30m, 30-40m, 40-50m, 50-60m, 60-70m, 70-80m, 80-90m, 90-100m, 100m or more
- River and other areas
- Flooding assumption area with a housing collapse risk, etc. (Flood inundation)
- Evacuation due to flood following collapse of the embankment, etc.
- Flooding assumption area with a bank erosion (Bank erosion)
- Evacuation from (wooden and non-wooden) houses as there is a risk of collapse due to bank erosion
- Designated Evacuation Shelters and Designated Emergency Evacuation Shelters
- Fire Corps Station
- Emergency Supplies Warehouse
- Sluiceway
- Precipitation measurement site
- Water level measurement site
- Live camera
- Border between municipalities
- Border between village sections
- Rivers and reservoirs

What to bring when evacuating (reference)

As the stockpiles at evacuation shelters are limited and they are distributed preferentially to the elderly, physically disabled, and infants, etc., it is best if you prepare enough essential goods by yourself. As for an emergency bag, a backpack is convenient as you can use both of your hands freely. Carry your backpack to check if it is too heavy.

Important points

- Prepare your own goods referring to the list.
- If an emergency bag is too heavy, it will be a hindrance when evacuating, so reduce its weight.
- Prepare one backpack for each family member, and store them separately in a place where you can easily access them.

Items to put in an emergency bag (such as a backpack)

- Portable radio
- Mobile battery
- Flashlight (with extra batteries)
- Candles
- Drinking water and long-lasting ones
- First-aid medicine (band-aids, gauze, bandages, triangular bandages, antiseptic, ointment, antibiotic, over-the-counter medicine, etc.)
- Drinking water and emergency food (such as hardtack)
- Daily necessities (lighter, white, can opener, tissue paper, plastic bag, etc.)
- Clothing (underwear, jacket, gloves, socks, handkerchiefs, towels, etc.)

Necessities depending on your family structure

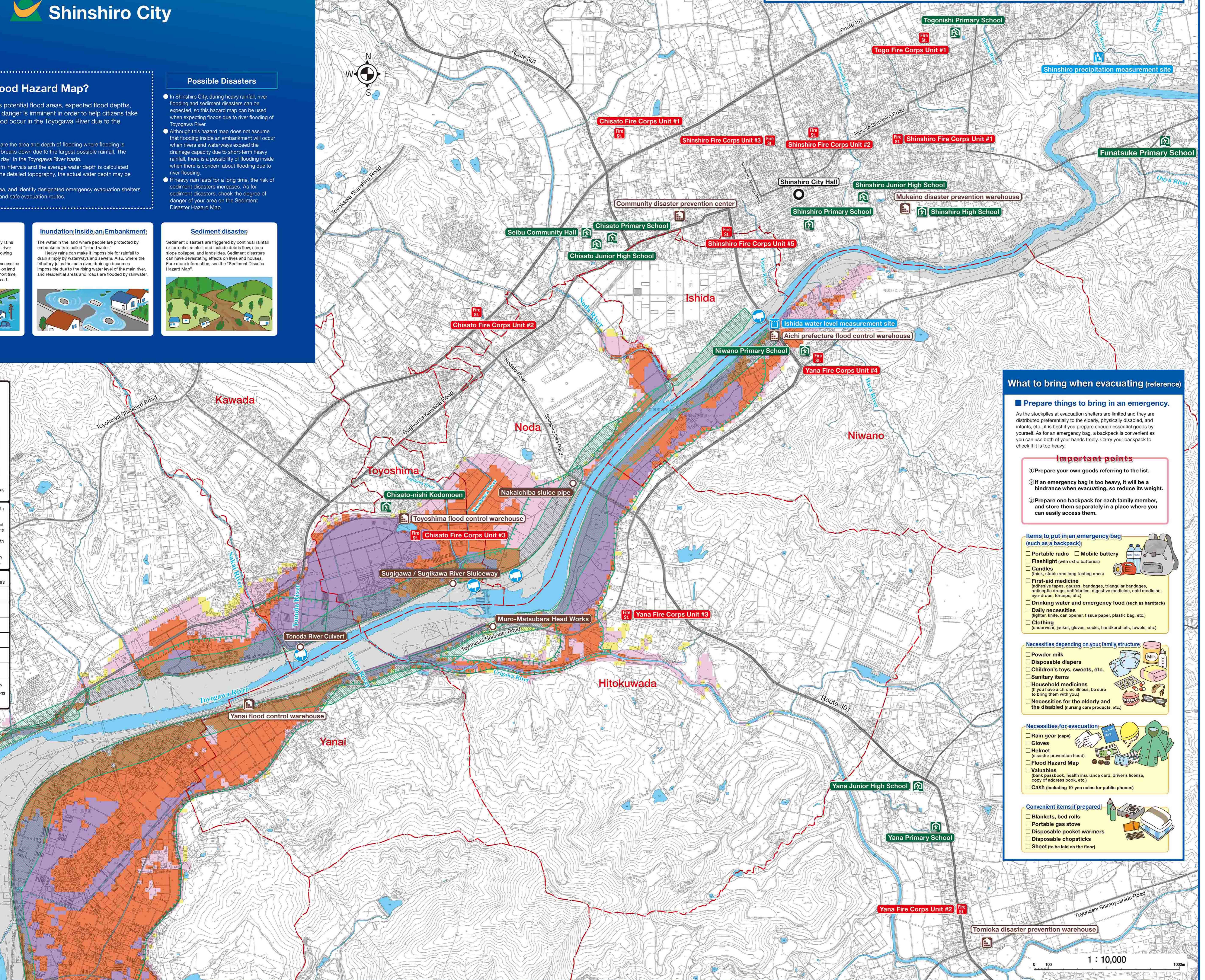
- Powder milk
- Disposable diapers
- Children's toys, sweets, etc.
- Sanitary items
- Household medicines (if you have a chronic illness, be sure to bring them with you)
- Necessities for the elderly and the disabled (hearing care products, etc.)

Necessities for evacuation

- Rain gear (cape)
- Gloves
- Helmet (disaster prevention hood)
- Flood Hazard Map
- Valuable items (bank passbook, health insurance card, driver's license, copy of address book, etc.)
- Cash (including 10-yen coins for public phones)

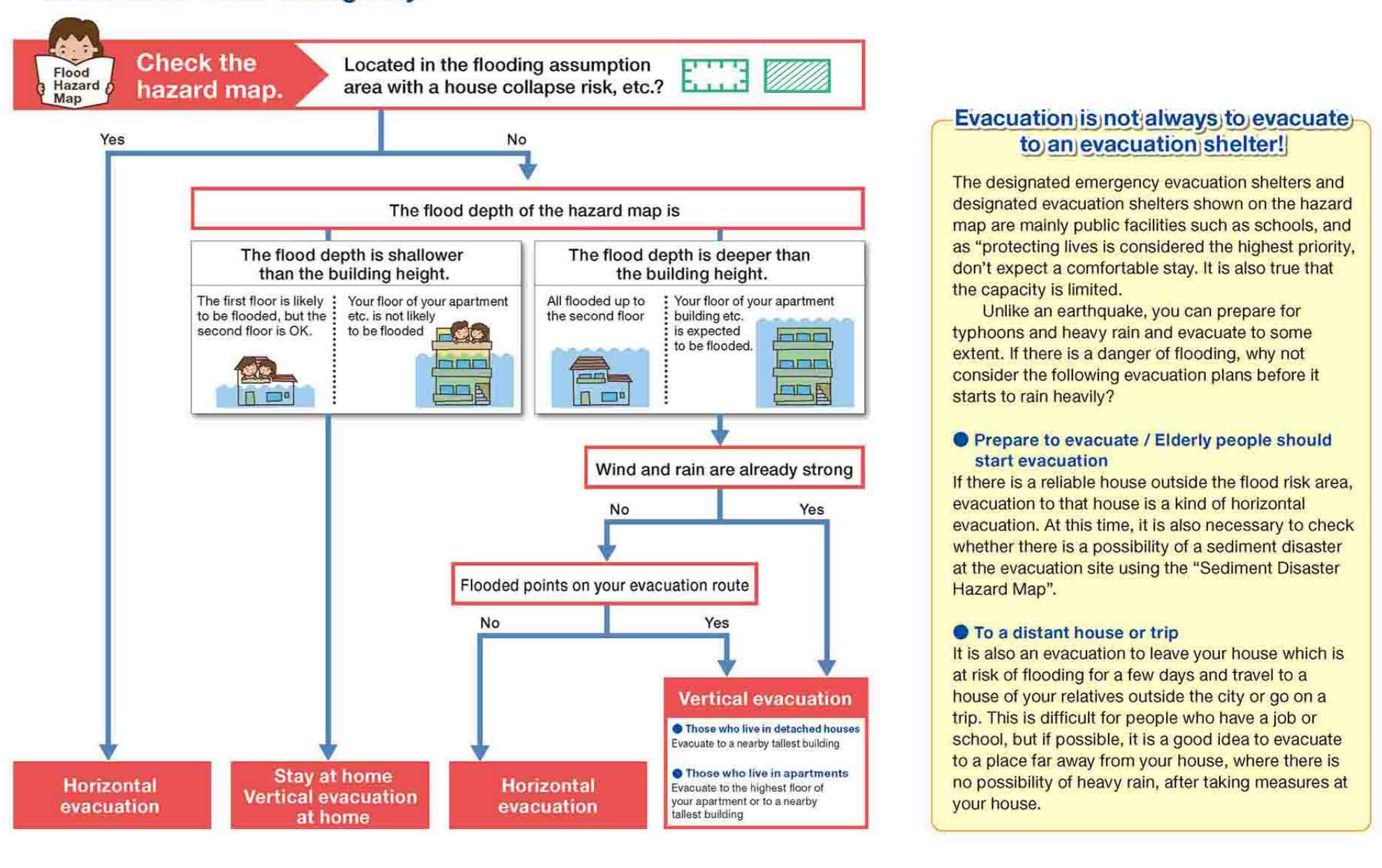
Convenient items if prepared

- Blankets, bed rolls
- Portable gas stove
- Disposable pocket warmers
- Disposable chopsticks
- Sheet (to be laid on the floor)



Actions to protect you and your family from wind and flood damage

Use the hazard map to check the depth of flooding at your house, etc., and check your actions in the event of an emergency.



Disaster prevention actions of citizens for typhoons and heavy rain (timeline)

Timeline	3-5 days before typhoon	1-2 days before	Approx. half a day before	A few hours before	Disaster occurrence
Rain and wind conditions	☁️	☁️	☁️	☁️	☁️
Alert level	1	2	3	4	5
Evacuation information	Information on evacuation	Giving warnings such as voluntary evacuation	Evacuation preparation, etc. start evacuation	Evacuation advisory	Evacuation order (emergency)
Information on weather and rivers	Early warning information	Heavy rain/flood advisory	Heavy rain/flood warning	Information on potential flood hazards	Disaster occurrence
Actions you and your family should take	Confirm how the typhoon is progressing, confirm family's location and routes, confirm and clean around the house and implement countermeasures, secure disaster prevention goods, and purchase if there is any shortage, secure goods for chronic diseases (medicine for at least one week), relief and refrain from using your car	Check weather information on TV, radio, the Internet, etc., confirm the water level of Toyogawa River, rainfall at the upper section of the river, etc., charge your mobile phone and battery	Those who need time to evacuate (elderly people, infants, etc.) should evacuate at night in case of heavy rain at night, if possible, evacuate early before sunset, if an unusual event is found, such as overflowing water from a waterway, check evacuation information frequently	Immediately evacuate to safe places such as hillside designated emergency evacuation locations, evacuate vertically to the second floor or a nearby high place.	Evacuation completed

Reduction of Damage to Your House and Household Goods

Preparation

Take precautionary measures against wind and flood damage to reduce damage to your house and also to reduce damage to neighborhoods.

When flooding might be imminent

- Reduce damage to stabilization: Turn on the power of the fan (specific fans) in a high place or on a table, etc. to prevent flooding.
- Reduce damage to furniture: Place a long board to prevent water from getting into the sofa base.
- Reduce damage to household goods: Move the items to a higher place, evacuate your clothing (even if it's clean) to a safe place, move items that can be easily moved, such as books, to a safe place.

Tips for Evacuation

Checking your belongings

Evacuation is a place to secure yourself. Bring what you need during the evacuation period.

Be sure to bring food!

- Bring your own food that you will need during the evacuation period (rice balls, lunch box, bread, instant food, canned food, sweets, etc.)
- Buy food before the typhoon approaches.
- Stock up on a sufficient amount of drinking water.

Avoid evacuation by car

If the water depth exceeds the floor of your car, water may enter into your car and cause a malfunction or engine stops. Therefore, evacuation by car should be completed before wind and flood damage.

- There is no problem with running.
- Braking performance deteriorates and it is necessary to move your car to a safe place.
- The engine stops and you have to escape from your car.
- Your car floats and, in the case of a car with a power window, you will be trapped in your car and swept away by your car, resulting in a very dangerous situation.

Precautions to be taken when forced to walk through floodwater

- Use a long stick or walking stick to check the water depth.
- Carry elderly people, physically disabled people, etc. on your back when evacuating.
- Do not get close to dangerous places such as disconnected wires.
- Use a long stick or walking stick to check the water depth.
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