

# Protecting Yourself from Flooding

## ~Toyama City Flood Hazard Map~



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# Introduction

**Please imagine.**  
**The first step is understanding that it could "happen to you".**

Try to picture it. It's been raining all night, and now it's only raining harder. The river you're so used to seeing looks much different from normal. Now it is rough and wider than you've ever seen, and you can see that trees have been uprooted and are being carried by the water. Then finally, the water overwhelms the river banks and spills over them, beginning to flood the surrounding area. You watch as the muddy water rushes toward your town.

What would you do in this situation?

If you want to be able to respond appropriately when faced with danger like this, you need to get ready in advance by understanding the risks and thinking about how you should evacuate if it becomes necessary.

In recent years, heavy rains have caused damage in many places in Japan. You never know when it might happen where you live. Read this brochure and carefully and start thinking about **how to protect yourself and those you love.**

The Jinzu River (near Jinzu-Ohashi Bridge) at the peak of 2004's 23rd typhoon



The same view during normal conditions



Provided by Toyama Office of Rivers and National Highways

- 1. Be responsible for your own safety**
- 2. Evacuate early by your own judgment**
- 3. Work together (Don't evacuate alone)**

Things to remember when evacuating:

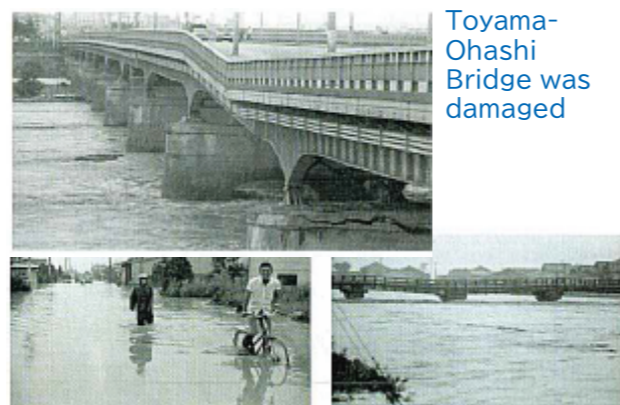
## Record of flood damage in Toyama City

● Heavy rains associated with Typhoon No. 23 in 2004



Flooding in the Shinmei Area

● Heavy rains in July and August in 1969



Toyama-Ohashi Bridge was damaged

Flooding condition in the Mizuhashi Area The flooded Shiraiwa River

Flood damage occurred around where the Jinzu River and the Ida River converge (267 houses were flooded above floor level and 338 houses were flooded below floor level).

Some of the bridge piers of Toyama-Ohashi Bridge were washed away, and the road was closed for 30 days.

Floods of the Joganji River and other waterways caused flooding damage above floor level to 628 houses (mostly in the Mizuhashi area).

Reference: "History of Toyama City" published by History of Toyama City Editing Committee.

# What is your evacuation plan?

**Look at the Flood Hazard Maps inside the pocket of the back cover.**

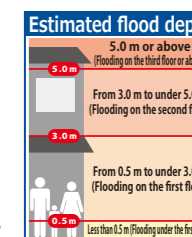


This page explains some important points to help you understand the hazard maps.

Check them and think about what you should do in your situation.

## STEP 1 Is there a risk of flood in the area around your house?

- The detailed area maps show two phases of predicted flood damage. (colored)
- Check the estimated flood depth in the map and make sure you understand how deep the water could become around your home.



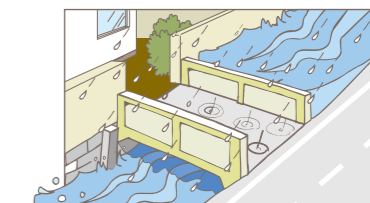
## STEP 2 Where should you evacuate to?

- There are three main options for evacuation.
  - ① Evacuate to a shelter or other evacuation areas shown on the map.
  - ② Evacuate to a safer area or a building nearby
  - ③ Seek safety indoors
- Be prepared to take evacuation actions according to the situation.



## STEP 3 Are there any dangerous places along the evacuation route?

- When evacuating, it may not be possible to fully check the road surface at night or due to flooded roads. Make sure that there are no dangerous places such as an unfenced waterways, uncovered gutters, and steps beforehand.



An unfenced waterway

## STEP 4 Check the information and timing of the evacuation.

- Review the map on occasions of heavy rains, typhoons, or evacuation drills, to be prepared for emergencies.

Let's check!

Evacuation information



Evacuation timing

On the following pages, you will find detailed explanations of relevant information that will lead to more appropriate evacuation actions.

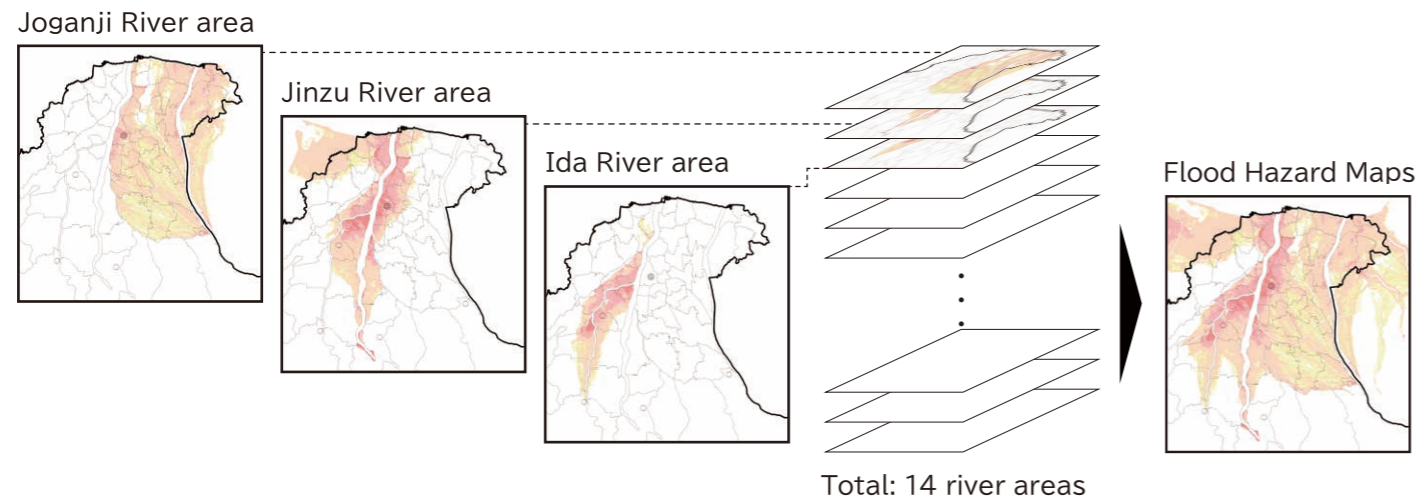
# Do you know the Flood Hazard Maps?

Whenever there is a risk that major rivers will flood, these maps indicate the areas where the flooding is expected to cause damage (Areas likely to be threatened by flooding) and information on evacuation and disaster prevention.

## Estimated flood inundation area

The map shows the classification of the maximum depth of flooding due to river flooding, color-coded by depth.

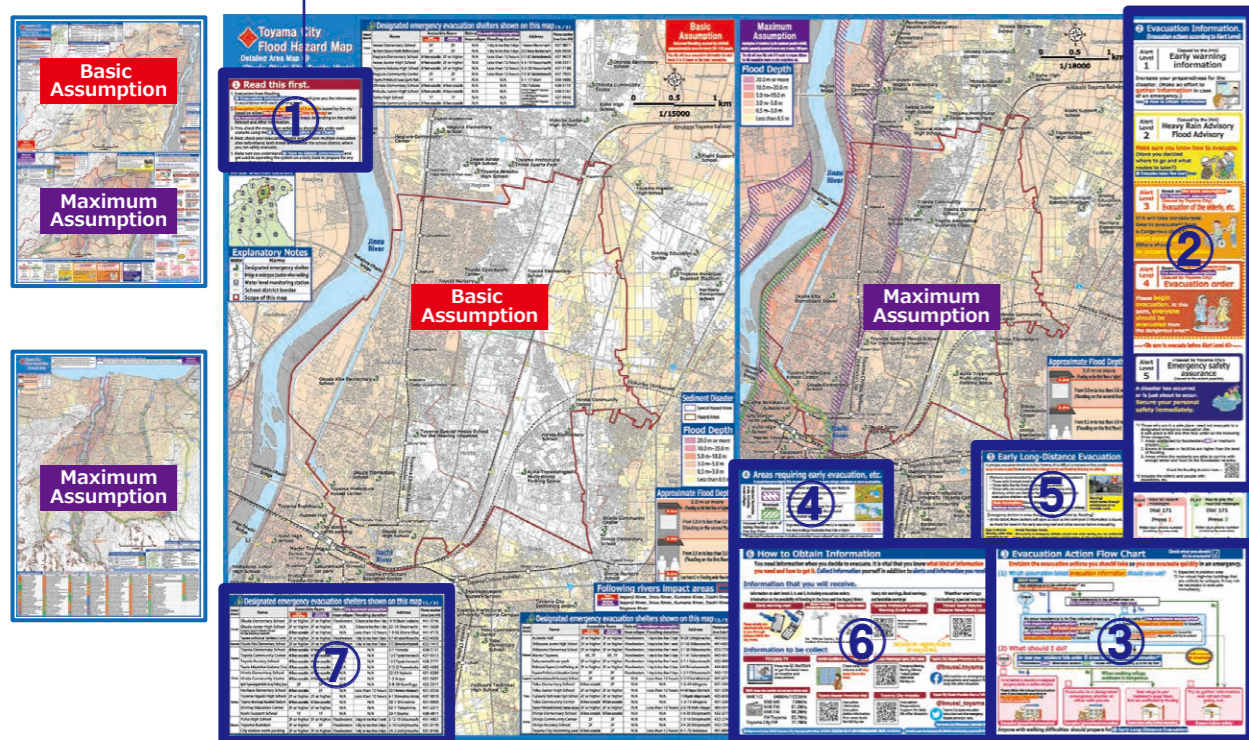
Be aware that uncolored areas may also flood depending on how much it rains.



## Map types

It consists of a "General map" showing the entire area expected to be inundated by flooding and a "Detailed map of the area" for confirming evacuation routes. The detailed map of the area shows two types of expected flooding: **the basic assumption** and **the maximum assumption**.

For more details about the impact for each river, see the section for River Maps on the Toyama City website.



\*There are two types of detailed area maps: vertical and horizontal, depending on the district.

## Explanation of each item on the Flood Hazard Map

### ① Read this first.

This section contains instructions for using the map.

### ② Evacuation information (the five alert levels and their evacuation actions)

This section shows such information as announcements or orders based on the alert level and indicates the actions to be taken for each level.

### ③ Evacuation Action Flow Chart

In order to evacuate quickly in an emergency, it is important to know in advance **what evacuation action to take based on flood damage estimates when an evacuation notice is issued.**

### ④ Areas that require early evacuation

If you live in one of these areas, there is an **especially high risk that your life will be endangered** by flooding, so be sure to **quickly evacuate outdoors** if any evacuation instructions are issued.

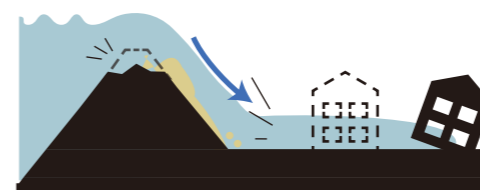
● **Assumed flood area for possible house collapse, etc. (Two areas, "floodwaters" and "riverbank erosion," are shown for the maximum assumption only.)**

○ Floodwaters

Wooden houses\* are likely to be swept away or destroyed by violent floodwaters from rivers.



Map legend

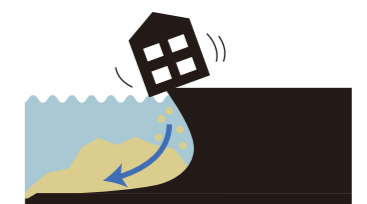


○ Riverbank erosion

Flooding may cause houses to be washed away or collapse.



Map legend



\*In some cases, it may not be necessary to immediately evacuate the building if it is a sturdy high-rise building that is unlikely to collapse.

### ● Residences that may be inundated to the top floor

As a general estimate, buildings may be inundated to the top floor by 0.5 meter of floodwater for one-story buildings, 3 meters of water for two-story buildings, and 5 meters of water for three-story buildings.

**Evacuate to outdoors quickly.**

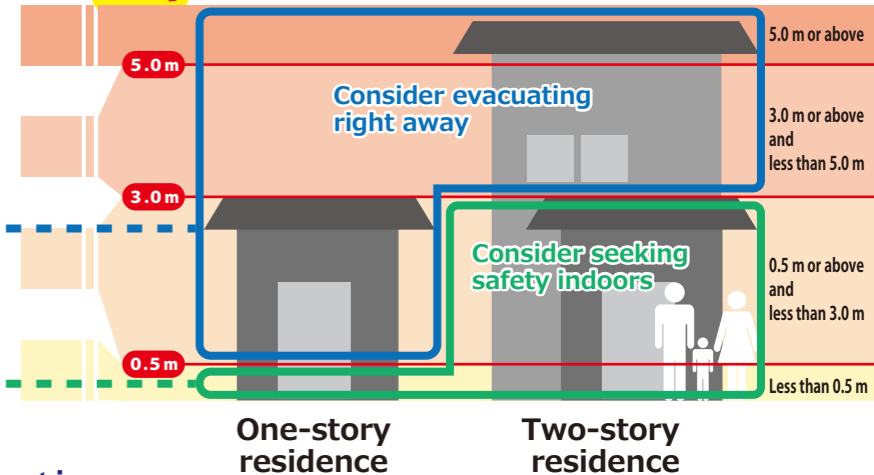
Single-story:  
0.5 m or more  
Two-story:  
3.0 m or more

**Depending on the situation, consider staying indoors for safety.**

Single-story:  
less than 0.5 m  
Two-story:  
less than 3.0 m

STEP 1

Check the map based on the shades below.



### ⑤ Early long-distance evacuation

This is a request to start evacuation as early as possible for people with disabilities, people who live far from evacuation shelters, and people in school districts where evacuation shelters are not expected to have sufficient capacity.

When evacuating by car, which is one of the evacuation methods for those who cannot evacuate on foot, it is important to understand the risks involved, start evacuation as early as possible, and evacuate to a safe place where flooding is not expected. (Continues on page 8)

⑥ and ⑦ are on the next page.

Answer to Question 1 of the quiz at the end (3.0 m or more)  
Evacuation to the outdoors is necessary due to the high risk of loss of life.

## ⑥ How to Obtain Information (information to be delivered and information to be corrected)

It is necessary to understand the situation and make the decision to evacuate based on the information available. It is important to know what information is available and how to get it.

In order to avoid panic in an emergency, it is important to familiarize yourself with the "information to be corrected" on a regular basis.



## ⑦ Designated emergency evacuation shelters



This is a facility or place for **emergency evacuation to save lives** from river flooding. In order to accommodate long-distance evacuation at an early stage, Evacuation centers will be opened in areas not expected to be flooded.

The evacuation shelters will be opened sequentially depending on the situation, but some may not be opened, so check the information available at the time before evacuating.

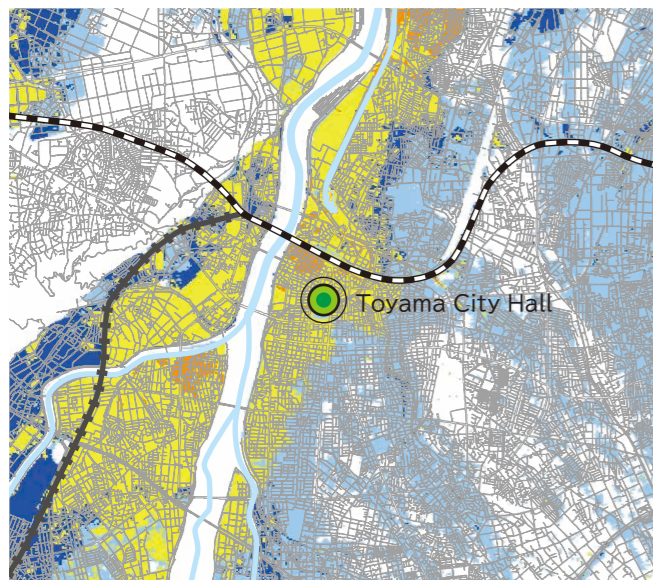
The list shows the available floors and other risk information for each assumption.

School district	Name	Accessible floors		Risks at the maximum assumption		Address	Phone number (Area Code: 076)
		Basic Assumption	Maximum Assumption	House collapse	Flooding duration		
Okuda	Okuda Elementary School	2F or higher	2F or higher	Floodwaters	12 hours to less than 1 day	10-18 Okuda-Futabacho	441-3746
	Okuda Junior High School	2F or higher	2F or higher	N/A	12 hours to less than 1 day	25-10 Okuimachi	441-3628
	Toyama Special Needs School for the Hearing Impaired	All floors accessible	2F or higher	N/A	Less than 12 hours	1-9-56 Shimo-Okui	441-9172
	Toyama prefectural Kyosei Center	2F or higher	2F or higher	Floodwaters	1 day to less than 3 days	6-7 Minatoirifunecho	432-4500

Excerpt of evacuation shelters on the detailed area map ⑧

## ! Flooding duration

This is a calculation of the total time from when the depth of inundation exceeds 50 cm to when it falls below 50 cm, under certain conditions, under **the maximum assumption**. This information can be used to make decisions such as selecting an evacuation shelter or whether to staying at home.

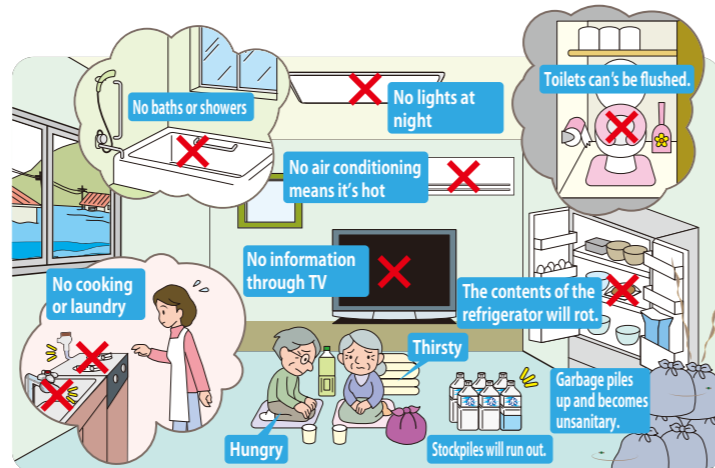


"The general map" is posted on the Toyama City website, so please check the area around your home.



富山市 洪水ハザードマップ 🔍

If you stay in your home and there is a power and / or water outage, **long term flooding can be life threatening!**



- 3 days to less than 1 week
- 1 day to less than 3 days
- 12 hours to less than 1 day
- Less than 12 hours

## Two flood inundation assumptions (The basic assumption and the maximum assumption)

### Basic Assumption

- In the city, the estimated flood inundation area for **rainfall (planned scale\*1)**, which is the **basis for river maintenance**, is called the "**basic assumption**". It corresponds to rainfall that occurs relatively frequently.

\*1: It is set by the river administrator for each river, taking into account the size of the river basin and other factors. The annual excess probability of the target rivers affecting the city range from 1/30 (Tsubono River) to 1/150 (Joganji River, Jinzu River, and Nishihasen River).

### Maximum Assumption

- In order to cope with the frequent heavy rainfall, an estimated flood inundation area based on the maximum observed rainfall, which is **the maximum possible rainfall (estimated maximum\*2)**, is called the "**maximum assumption**". Based on advance information such as the total amount of rainfall expected, it is necessary to prepare for rainfall that exceeds the planned scale and is of the assumed maximum scale.

\*2: In general, the annual excess probability is about 1/1000.

What is annual excess probability?

It is the probability that a flood of that magnitude will occur each year.

If the annual excess probability is 1/50, the probability of rainfall exceeding that magnitude occurring in one year is 2.0%.

(There is an expression "rainfall that occurs about once every 50 years" and this expression is also used in the map. However, please note that this is not a regular occurrence in a 50-year cycle.)

## ! Total rainfall set for each target river

You can see the location of these rivers on page 13.

Administrator	River system	River name	Total rainfall of planned scale (Subject to the basic assumption)	Assumed maximum total rainfall (Subject to the maximum assumption)
MLIT	Shogawa River	Shogawa River	Total rainfall for 2 days: 368 mm (1/150) (No effect in the city)	Total rainfall in 48 hours: 655 mm
MLIT	Joganji River	Joganji River	Total rainfall for 2 days: 498 mm (1/150)	Total rainfall in 48 hours: 776 mm
MLIT	Jinzu River	Jinzu River	Total rainfall for 2 days: 264 mm (1/150)	Total rainfall in 48 hours: 537 mm
MLIT	Jinzu River	Nishihasen River	Total rainfall for 2 days: 264 mm (1/150)	Total rainfall in 48 hours: 537 mm
MLIT	Jinzu River	Ida River	Total rainfall for 2 days: 254 mm (1/100)	Total rainfall in 48 hours: 753 mm
MLIT	Jinzu River	Kumano River (Downstream*)	Total rainfall for 2 days: 276 mm (1/100)	Total rainfall in 48 hours: 872 mm
Toyama Prefecture	Jinzu River	Kumano River (Upstream*)	Total rainfall in 24 hours: 232 mm (1/50)	Total rainfall in 24 hours: 730.8 mm
Toyama Prefecture	Jinzu River	Itachi River	Total rainfall in 24 hours: 207.9 mm (1/50)	Total rainfall in 24 hours: 813 mm
Toyama Prefecture	Jinzu River	Dogawa River	Based on total rainfall of 161.1 mm in 24 hours (August 1914: peak flow rate 130 m³/s)	Total rainfall in 24 hours: 813 mm
Toyama Prefecture	Jinzu River	Yamada River	Total rainfall in 24 hours: 237 mm (1/50)	Total rainfall in 24 hours: 733.7 mm
Toyama Prefecture	Jinzu River	Tsubono River	Total rainfall in 24 hours: 177.3 mm (1/30)	Total rainfall in 24 hours: 813 mm
Toyama Prefecture	Kamiichi River	Kamiichi River	Total rainfall in 24 hours: 273.8 mm (1/50)	Total rainfall in 24 hours: 758 mm
Toyama Prefecture	Shiraiwa River	Shiraiwa River	Total rainfall in 24 hours: 233 mm (1/50)	Total rainfall in 24 hours: 723 mm
Toyama Prefecture	Shiraiwa River	Oiwa River	Total rainfall for 24 hours: 187 mm (1/50) (No effect in the city)	Total rainfall in 24 hours: 813 mm
Toyama Prefecture	Shiraiwa River	Tochizu River	Total rainfall in 24 hours: 166.1 mm (1/50)	Total rainfall in 24 hours: 807mm

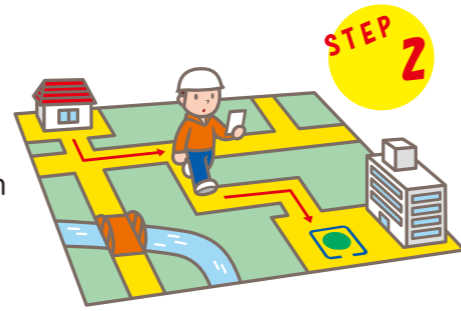
\*Upstream of Kumano Bridge is managed by Toyama Prefecture, while downstream is managed by the Ministry of Land, Infrastructure, Transport and Tourism.

(Reference)

Rainfall during Typhoon No. 23 in 2004 (Oct. 19 - Oct. 21), which measured the highest water level in the Jinzu River in recorded history  
 Takayama Observatory, Gifu Prefecture: 276mm/48h, 256.5mm/24h  
 Inotani Observatory, Toyama Prefecture: 208mm/48h, 191mm/24h  
 Toyama Observatory (Ishisaka): 116.5mm/48h, 106.5mm/24h

# How do you evacuate?

When evacuating due to flooding, your actions will depend on where you live and the situation at the time. Thinking about this in advance will help ensure a smooth evacuation in case of emergency.



The key is to be aware that you should protect your own life, and to act on your own judgment!



## Early Long-Distance Evacuation

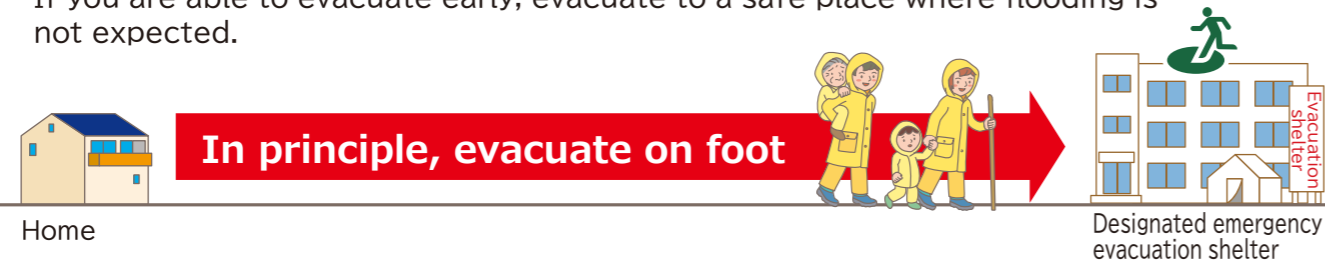
There are a number of large rivers in the city that may cause serious damage due to river flooding, and there are several school districts where designated emergency evacuation shelters within walking distance may not have sufficient capacity.

Check the [5 Early long-distance evacuation] shown in [Persons recommended for early long-distance evacuation] on the map and consider **evacuating at an early stage** if possible.

## Evacuation action according to the level of danger in our city

### Evacuation action 1 Evacuation to a designated emergency evacuation shelter

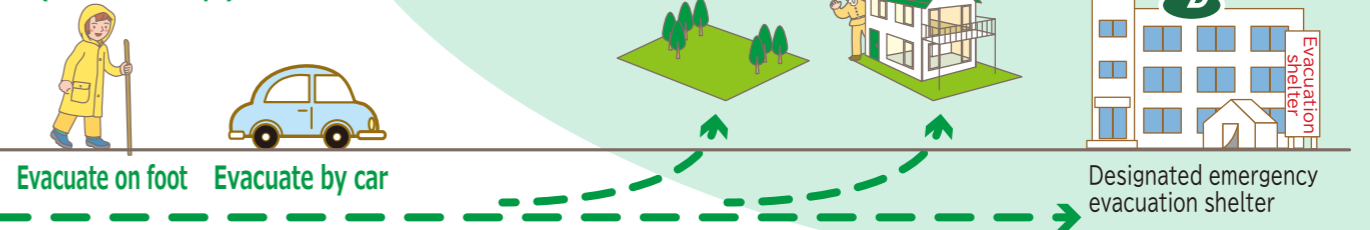
- This is the **basic evacuation action** for those who have coloring on the maps.
- If you are able to evacuate early, evacuate to a safe place where flooding is not expected.



### Early long-distance evacuation

[Eligibility]

- Those with limited mobility
- Those who are far from an emergency evacuation shelter
- Those who live in school districts where capacity is expected to be insufficient (Check the map!)



### Evacuation action 2 Evacuation to a safer area or a building nearby

- This is an evacuation action **when it is unsafe to move to a designated emergency evacuation shelter.**



\* In areas where there are many elderly people, voluntary disaster prevention organizations may voluntarily set up relatively safe facilities in the community as evacuation shelters in case evacuation action is delayed.

### Evacuation action 3 Ensuring safety indoors (Vertical evacuation in a building)

- This is an evacuation action **when it is dangerous to even go outside.**



(Note) For those who live in an area requiring early evacuation or whose top floor is likely to be flooded, evacuate as soon as possible because safety cannot be ensured by this evacuation action.

- Danger**
- Poor visibility at night or in heavy rain
  - When only persons requiring special care (elderly, disabled, etc.) are at home
  - Risk of inland flooding (unfenced waterways, uncovered ditches, etc.)
  - Flooding around your home

Depending on the situation, you need to make your own judgment and take appropriate evacuation actions.

## Evacuation by car

- The first thing you should know is that **evacuation should primarily be on foot.** If everyone evacuates by car, the risk of traffic congestion as described below will increase.
- The target is **people with disabilities, people who have difficulty evacuating on foot due to the distance to the evacuation shelter, and people who can evacuate early from the school district where the capacity of the evacuation shelter is not expected to be sufficient.** Know the dangers and **start evacuating as soon as possible.**

### [Risks when evacuating by car]

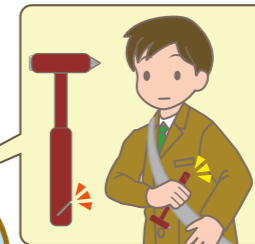
- The car may become stuck under a flooded underpass
- Traffic congestion may make it difficult to reach the evacuation shelter.
- The road along the river may collapse and cars may fall into the river.
- Cars may obstruct the passage of emergency vehicles.

### [What happens to a car when flooding starts?]

★ If the flooding exceeds the floor level, you are in danger!

There may be damage to the electrical system or engine  
→ Electric doors and windows may not work, the engine may stop or may not restart.

You can cut the seatbelt with the cutter part of the escape hammer.



- If the flooding level goes up to half of the door, you may not be able to open it from the inside.  
→ You should break the window glass with an escape hammer  
→ You can open the door if there is no difference in water pressure between the inside and outside.

- When tires are submerged in water  
There is a risk that the vehicle may float, making it difficult to move.

For more information, check the Ministry of Land, Infrastructure, Transport and Tourism's Road Bureau website.

国交省 冠水不具合



### [Things to keep in mind when evacuating by car]

- Avoid underpasses or riverside roads.
- Watch out for flooded roads. Don't take the easy way into muddy flooded water. Muddy water may hide dangers.
- Give priority to the passage of emergency vehicles.
- Watch out for people evacuating on foot
- When leaving your car unattended due to flooding or other problems, pull over to the shoulder of the road.
- Gather information on the radio



# When do you evacuate? STEP 4

Emergency preparedness begins with gathering information. Evacuation from floods depends on gathering reliable information and reading it correctly, so that you can take the appropriate evacuation action and know its timing according to the situation.

Evacuation order (alert level 4) requires all to evacuate.  
If you feel danger even before that, evacuate at your own judgment!



<Emergency Weather Information>

Information equivalent to warning level

Information released by the Ministry of Land, Infrastructure, Transport and Tourism, the Japan Meteorological Agency, and Toyama Prefecture as a reference for residents to take voluntary evacuation actions.

Evacuation information and actions to be taken

When do you evacuate?

Announcement	Alert Level 1	Announcement	Alert Level 2	Issuance	Alert Level 3	Issuance	Alert Level 4	Alert Level 5
	<p><b>Early warning information</b> (Issued by the JMA)</p> <p>Increase your preparedness for disasters and gather information.</p> <p><b>Information to be corrected</b></p> <ul style="list-style-type: none"> <li>● Toyama Disaster Prevention Web Information on                             <ul style="list-style-type: none"> <li>• Evacuation</li> <li>• Evacuation shelters</li> <li>• River water level</li> <li>• Rainfall, etc.</li> </ul> </li> <li>● The Japan Meteorological Agency (JMA) website                             <ul style="list-style-type: none"> <li>• Special warnings, warnings, advisories</li> <li>• Real-time Risk Map, etc.</li> </ul> </li> <li>● Toyama City website Information on                             <ul style="list-style-type: none"> <li>• Evacuation</li> <li>• post-disaster livelihood support, etc.</li> </ul> </li> </ul> <p>You can also check the water level of each river.</p>	<p><b>Heavy Rain Advisory Flood Advisory</b> (Issued by the JMA)</p> <p>Make sure you know how to evacuate.</p> <p>Check the hazard maps again!</p> <p>[Flood Warning water level] (Level 2 equivalent)</p>	<p><b>Alert Level 3 Equivalent</b> Information to provide a warning on flooding, flood warnings, etc.</p> <p><b>★ Evacuation of the elderly, etc.</b> (Issued by Toyama City)</p> <p>If it will take considerable time to evacuate<sup>*2</sup> from a dangerous place<sup>*1</sup>, <b>start evacuation</b>. Others should <b>be prepared for evacuation</b>.</p> <p>In addition to the evacuation shelters in the targeted areas, <b>those in areas not expected to be flooded will be opened</b> in order to provide shelters for long-distance evacuation.</p> <p>When the water level has reached the [evacuation decision water level] and the water level is expected to reach the [flood risk water level]</p>	<p><b>Alert Level 4 Equivalent</b> Flood risk information, landslide Alert Information, etc.</p> <p><b>★ Evacuation order</b> (Issued by Toyama City)</p> <p>Please <b>begin evacuation</b>. At this point, <b>everyone should be evacuated</b> from the dangerous area<sup>*1</sup></p> <p>If the water has reached [flood risk water level]</p>	<p><b>Alert Level 5 Equivalent</b> Information on flooding, <b>Heavy Rain Emergency Warning</b>, etc.</p> <p><b>Emergency safety assurance</b> (Issued by Toyama City)</p> <p>A disaster has occurred or is just about to occur. <b>Secure your personal safety immediately.</b></p> <p>Issued to the extent possible</p> <p>For example, when flooding is caused by a collapsed levee</p>			

\*1 Those who are in a safe place need not evacuate to a designated emergency evacuation site. A safe place is the one that falls under all the following three categories.

1. The area does not fall under the assumed inundation area such as possible house collapse.
2. Rooms in houses or facilities are higher than the level of flooding.
3. Areas where the residents are able to survive with enough water and food till the floodwater recedes.

Check the flooding duration here. →

\*2 Includes the elderly and people with disabilities, etc.

Be sure to evacuate before Alert Level 4!

## Begin early long-distance evacuation

- When evacuating on foot or by car, it is necessary to **start evacuation as early as possible** because of the possibility of delays due to traffic congestion or accidents.
- It is recommended to **start evacuation at the latest when “the evacuation of the elderly” (“alert level 3”)** is issued, as it may take some time to evacuate long distances.
- If you are going to evacuate after “the evacuation order” (“alert level 4”) is issued, evacuate on foot to a safe evacuation shelter.

From this point on, evacuate on foot

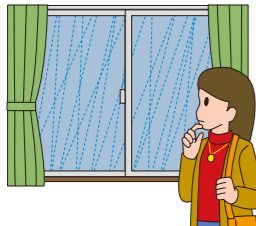
## Important: Timing of evacuation!

① **Two types of evacuation information marked with a star ★.**

The city will issue two types of evacuation information marked with ★ to the elementary school districts affected by the washout of the target river, either for the **basic assumption** or the **maximum assumption**. Be sure to check the detailed map of the area to see in which case you need to evacuate (coloring).

② **When you feel the need to evacuate**

If you feel the need to evacuate before the ★ information is issued due to the situation around your home or family reasons, do not hesitate to evacuate voluntarily without waiting for the ★ information. In this case, evacuation shelters are not open, and may not be opened at a later time so evacuate to a relative's or friend's house that you think is safe, or to a place that is not expected to be flooded.



Look outside from indoors and **do not approach rivers.**

**Water level information**

NHK 1	648kHz
NHK 2	1035kHz
KNB AM	738kHz
NHK FM	81.5MHz
KNB FM	90.2MHz
FM Toyama	82.7MHz
Toyama City FM	77.7MHz

Toyama City Disaster Prevention

- Facebook
- Twitter

## Information to be received

- Information on alert levels 3, 4, and 5, including evacuation orders;
- Information on the possibility of flooding in the Jinzu and the Joganji Rivers, etc.

Early warning mail

Disaster prevention administrative radio system

Public relations vehicle

Weather warnings (including special warnings)

Yahoo! Bosai Sokuho [Disaster News Flash] (app)

Heavy rain warnings, flood warnings, and landslide warnings

Toyama Prefectural Landslide Warning Email Service

Registration in advance is required.

Question 5 of the quiz at the end of the book “Check the river before evacuating, just in case” is wrong! It is a very dangerous act considering the possibility of sudden rise of the water level. You can find information on water levels on 「Toyama Disaster Prevention Web」

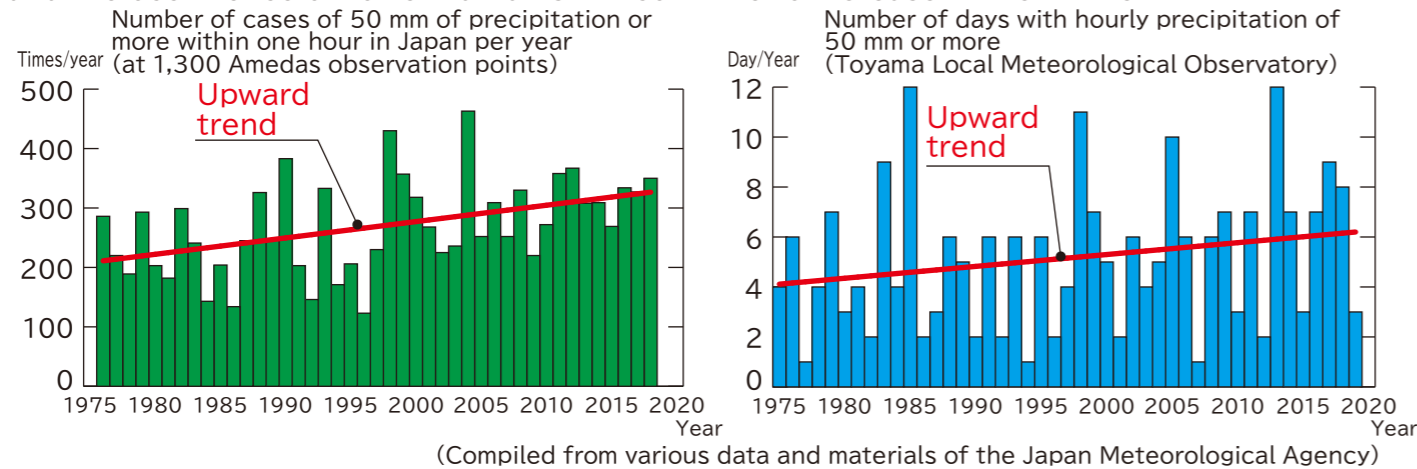
Answer to Question 2 of the quiz at the end of the book (Evacuation order, Alert Level 4) At this point, do not hesitate to evacuate immediately.

Question 5 of the quiz at the end of the book “I feel in danger, so I'm going to evacuate before the city issues an evacuation alert” is correct! It is important to always keep in mind that you are responsible for your own life, so if you feel in danger, value your own judgment and evacuate as soon as possible.

# Knowing about Floods for Safe Evacuation

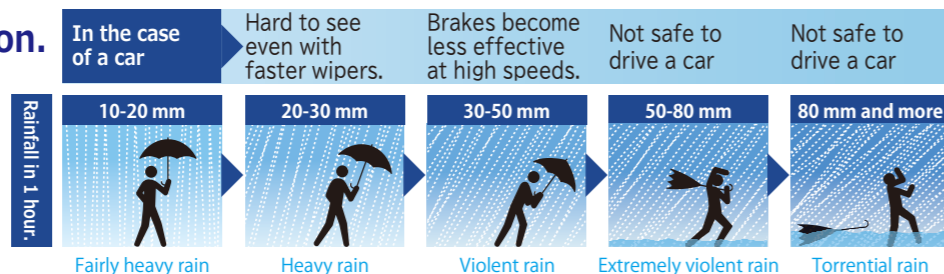
## Extremely violent rainstorms have been increasing in frequency in recent years.

It is believed that this is due to climate change caused by global warming and other factors, and the occurrence of torrential rains will continue to increase in the future.



### Be aware of 1-hour precipitation.

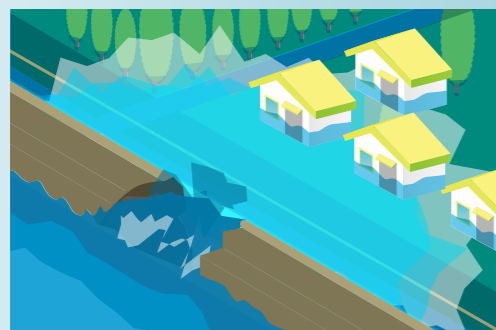
Be prepared by paying attention to weather and evacuation information in advance so that you can take evacuation action at the appropriate time.



If the hourly rainfall exceeds 30mm, roads can become like rivers. 50mm is like a waterfall and umbrellas are useless. Evacuating in this kind of rain can be dangerous, so consider staying indoors for safety.

### There are two types of flood.

#### flooding (river flooding) is a danger to life



When rain falls in large amounts over a wide area, such as from typhoons or stagnant fronts, it flows into rivers, causing them to swell and rush downstream in violent flows.

This can lead to flooding (river flooding) by eroding and breaking levees or overflowing them.

If you are in an area that requires early evacuation, evacuate as soon as possible. (See page 4)

These are the areas indicated on the Flooding Hazard Maps

#### Inland water overflow (Flood from inland waters) is a danger when evacuating.



Inland flooding occurs when too much rainfall on a city area cannot be drained away due to heavy rainfall or a rise in the water level of the river to which it drains.

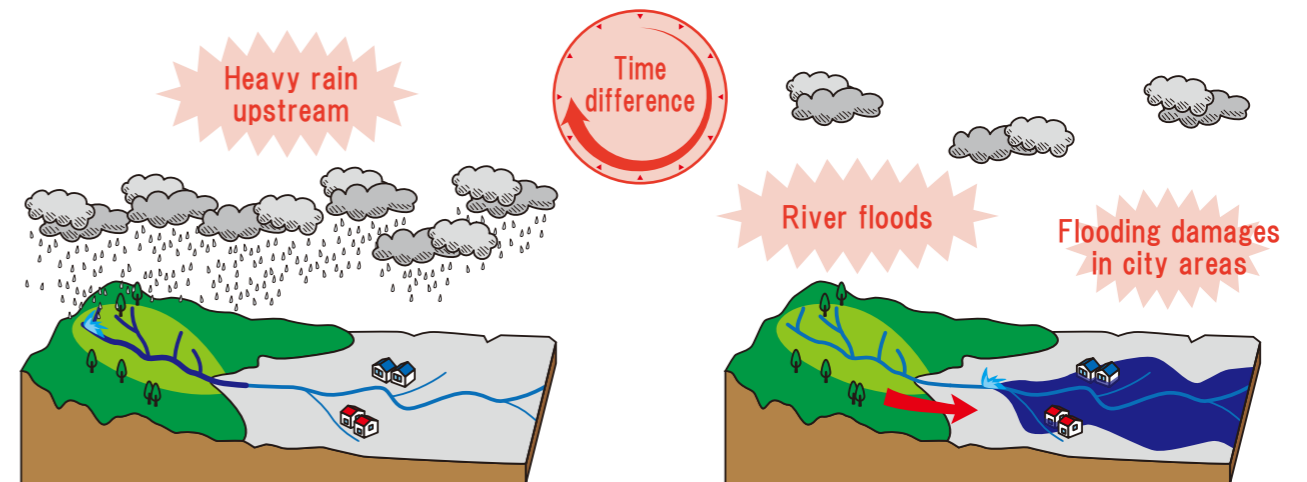
When evacuating from a flood, it may be difficult to evacuate safely because the road surface is under muddy water and cannot be seen properly due to inland water flooding. Check for hazards beforehand, when roads are not flooded.

Useful information to decide when to evacuate and how to choose an evacuation route.



### Floods do not always occur at the peak of heavy rainfall. Watch out for time-varying water level rise!

In the Jinzu River, it sometimes takes time for rainfall in the upper stream area (Gifu Prefecture) to reach the middle and lower stream areas (urban areas). In the lower stream areas, just when you start to feel relieved after the peak of rain, the water level may rise suddenly, and the river may flood.



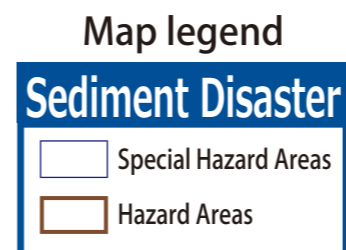
### The risk of landslides may become high as precipitation increases, be careful of landslides while seeking an evacuation shelter from flooding!

Since rain can cause landslides as well as flooding, the map is marked to show areas where vigilance is required. Those who live in these areas should pay very close attention to landslide alert information.

When evacuating from a flood, take safety precautions to avoid passing through areas with a high risk of landslides as much as possible.

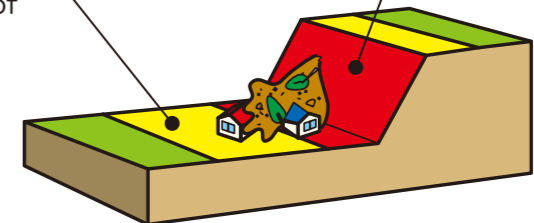
#### Sediment Disaster Special Hazard Areas

Landslides may cause damage to buildings, resulting in serious harm to life or body.



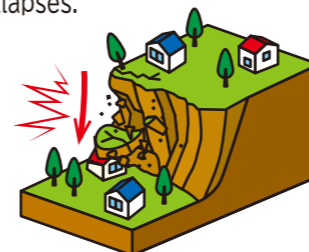
#### Sediment Disaster Hazard Areas

There is a risk of danger to life or body due to landslides.



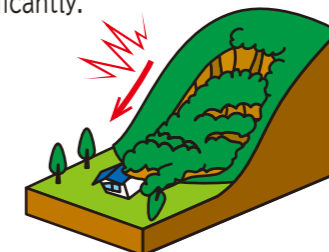
#### Landslip (collapse of land on steep slopes)

This is a phenomenon in which the ground loses its stability due to heavy rainfall and the slope suddenly collapses.



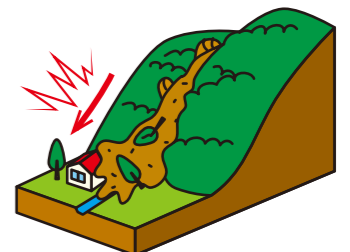
#### Landslide

This is a phenomenon in which a slope slides due to the influence of groundwater and other factors, causing it to move downward significantly.



#### Mudslide

This is a phenomenon in which stones and sediment on mountainsides or river bottoms are swept downstream by heavy rain.



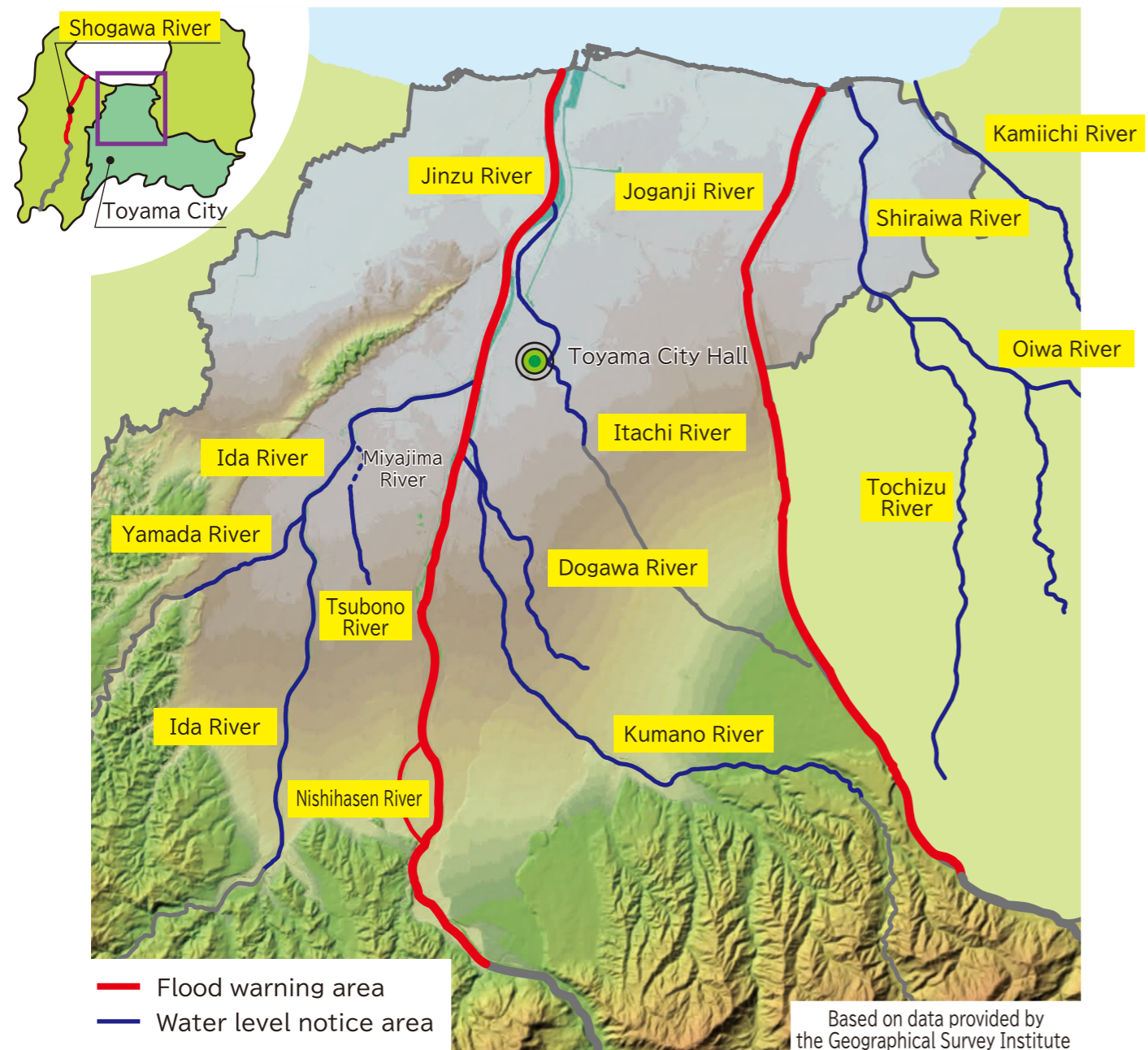
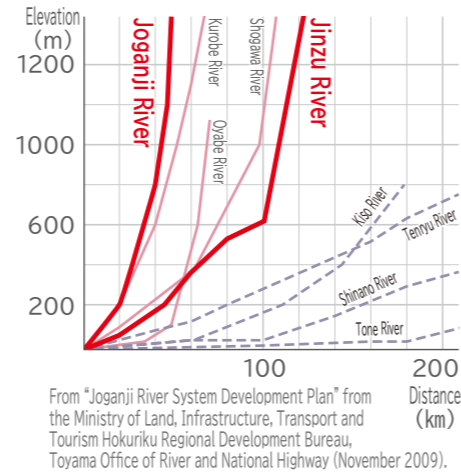
Flood hazard maps do not distinguish between the above three phenomena. See "Toyama City Landslide Hazard Maps" for more details.

# Knowing about Geography for Safe Evacuation

There are many rivers flowing through the city that could cause serious damage due to flooding. In particular, the **Joganji River** and the **Jinzu River**, which are considered to be two of the fastest flowing rivers in Japan (see the figure on the right), may have very high flood energy.

Much of the city area of Toyama is on a vast alluvial fan, and flooding of the **Joganji River**\* tends to cause widespread and shallow flooding, and is expected to affect the center of the city. Fast-flowing floods may be imminent, so take appropriate evacuation action according to the situation.

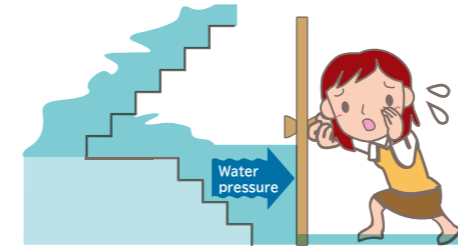
On the other hand, when the **Jinzu River floods**\*, it tends to flood deeply in a narrow area along the river, so evacuate to a safe evacuation shelter or site as soon as possible.



\*Illustration of flooding on the Joganji and Jinzu Rivers  
For rivers under the jurisdiction of the Ministry of Land, Infrastructure, Transport and Tourism, you can check the "Flooding Navigation" website of the MLIT to get an idea of the spread of flooding.

# Things to Remember When Evacuating

1. Be responsible for your own safety
2. Evacuate early by your own judgment
3. Work together (Don't evacuate alone)



## Wear comfortable clothes.

- Carry supplies in a backpack to keep both hands free
- Wear athletic shoes that you can tie tightly
- Do not wear rubber boots because water gets inside them, which is dangerous
- Instead of carrying an umbrella, keep your hands free by wearing a rain poncho or cape



## Avoid hazards when moving.

- The person leading the group should use a long stick or umbrella to secure their footing.
- Watch out for manholes, ditches, waterways, depressions, and other hazards.
- Do not walk into underpasses or on the edge of the street.
- Stay away from downed powerlines.
- Avoid bridges with high water levels as much as possible.



## Dangers in underground facilities

- Being underground makes it hard to see conditions outside.
- There is a high risk of underground spaces filling with water, losing power, and so on.
- Lighting, elevators, and other equipment may no longer work.
- It is very difficult to evacuate while walking against the flow of water.

## Caring for those who need assistance



### The elderly, the sick or injured, children, etc

- Evacuate to a safe place by carrying the person, such as by piggyback, or by leading them by hand.



### For those with limited limb mobility (people who use wheelchairs)

- Use more than one person if possible. If alone, carry the person on your back to evacuate.
- Have them face forward when going up stairs and backward when going down.



### People with visual impairments

- Communicate information by calling out
- When leading someone with a visual impairment, walk slowly, and stay on the opposite side of the hand holding their cane.



### People with hearing impairments

- Speak clearly and make it easy for the person to see your mouth for better understanding.
- Use writing or other ways of communicating.



### People with "Help Marks"

This mark indicates that assistance is needed in the event of a disaster, even if it is not apparent at first glance. Please take this into consideration when evacuating.

### More about "Help Marks"

富山市 ヘルプマーク



Answer to Question 3 of the quiz at the end of the book (b. Athletic shoes)  
If you have no choice but to evacuate by walking through flooded areas, avoid wearing boots or sandals.

Question 5 of the quiz at the end of the book  
"Evacuate alone to make the going easier" is the wrong answer!  
It's dangerous to evacuate alone because unexpected things can happen.  
Try to evacuate with at least one other person. Ask your neighbors if you are alone.



# Be Prepared

## Emergency Supplies

In order to evacuate quickly and safely, prepare **the minimum amount of items that you can carry**, taking into consideration **your family structure, condition, chronic illnesses, etc.**, and pack them in a **backpack**. Or something similar, and keep it in a place where it is easy to access, such as near the front door.



## Extra supplies

In the days following a disaster, logistics may stop and you may not be able to shop as you normally would. In case you have to stay at home, it is a good idea to stockpile at **least three days'** worth of supplies in a place that is less susceptible to flooding.

Category	Item	✓	Category	Item	✓	Item	✓
Foods	Retort packaged foods (rice, rice porridge, etc.)		Daily necessities	Bathroom necessities (toilet paper, portable toilets, etc.)			
	Instant noodles			Containers for waste			
	Instant miso soup			Plastic tank for water			
	Hardtack			Dry shampoo			
	Canned food			Sleeping bags			
	Nutritional supplements			Tissues			
	Snacks (candy, etc.)			Wet wipes			
	Potable water			Plastic bags			
				Can opener			
				Paper plates and cups			
		Gas burner					
		Plastic wrap					
		Lantern					

These are just some examples. Think about your own family's needs and make a list of what you would need.

### Estimated supply stock

- **Potable water** 2-3 liters per day per adult
- **Toiletries** 5 per day per person
- **Water for daily use** Keep a store of water separate from drinking water in a plastic tank or the bathtub

### Incorporate stockpiling into your lifestyle (rolling stock)

The rolling stock method is a concept of stockpiling emergency food and other items that are not normally used, but rather **consuming them on a daily basis and restocking them as they decrease**.

This is an effective method for reducing issues with expiration dates and costs that come with maintaining such stocks.



## Steps you can take against flooding at home

There are ways to reduce the damage caused by flooding, including using sandbags or watertight barriers around entrances like doors, windows, and cellars.

If you cannot prepare soil or sand at home, simple sandbags that absorb water and harden can be bought at stores. Or you can make simple waterbags by hand using materials you have available.

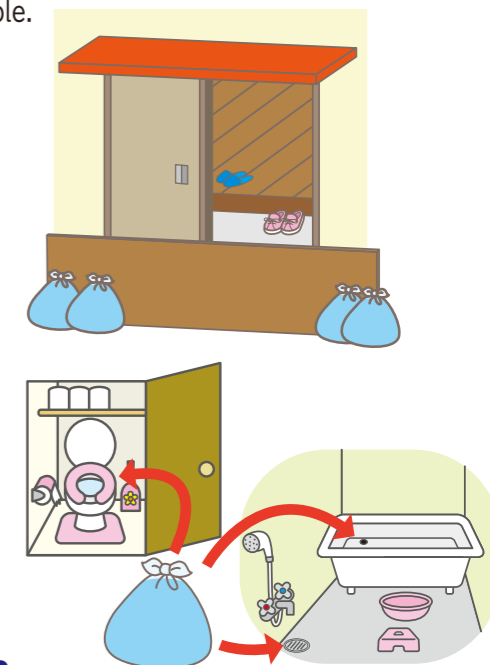
### How to use simple waterbags

Create a bag by layering two roughly 45-liter garbage bags and fill it about halfway with water. Squeeze the air out and tie it closed to finish the waterbag.

Sometimes heavy rain can cause sewers to clog up, which can lead to water shooting out of **toilets**, sinks, bath tubs washers, and other **drains** in the house.

You can use waterbags in **toilets** or on **top of drains** to stop water from shooting up.

In addition, to reduce damage to household goods, it is also important to move expensive home appliances and family photo albums to the **highest place possible**, and to move private cars to a safe place as soon as possible.



## Think about your evacuation plan

Talk with your family about your evacuation plan.

Everyone in the family should share information about where the emergency supplies are kept, where to evacuate to and which evacuation routes to take depending on conditions, and so on.

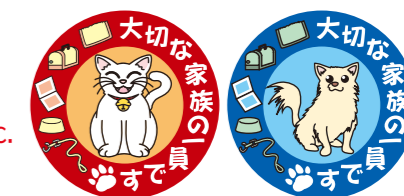
Draw an **evacuation map of your home** on the inside back cover of this booklet to help you get to the evacuation shelter safely.



## For pet owners

**Designated emergency evacuation shelters are for the protection of human life**, and pets are not allowed in the building. Therefore, if you evacuate with your pets, **please do so in an area that is not expected to be inundated or at the homes of relatives or friends**.

(Evacuation shelters will be opened sequentially for evacuation of the elderly, etc. (alert level 3). It is not always open.)



## Disaster preparedness videos

### Predicting flood danger levels in real time

This includes a number of key points that are useful in judging the timing for beginning evacuation based on a threat level distribution of flood warnings.

### Real-time Risk Map (Cabinet Office)



From the government's online channel

政府インターネットテレビ 危険度 🔍

### How to Protect Yourself from Flooding ~Three Keys to Saving Lives~ (MLIT)

This resource teaches children the dangerous situations they may face during flooding and actions they can take to protect themselves and be prepared at all times.

防災教育ポータル 🔍

# Protect your Community



## Self-help, mutual-help (protecting our community together).

Public assistance (from disaster management agencies) has its limitations. In order to protect our lives from flooding in our community, **it is important to be aware of the importance of self-help (protecting our own lives by ourselves) and mutual-help (protecting our community together).** We should be sharing this preventative stance that encourages people to get ready independently so that they can take responsibility for their own safety and make decisions independently rather than relying on the judgment of others.

## Mutual-help (protecting our community together).

**Locally-lead disaster preparedness activities** are an effective way to achieve safer evacuation in our community. For example, local **disaster drills** can provide opportunities for residents to talk to others nearby with whom they usually do not much contact, as they work together to help prepare their community as a whole by thinking about evacuation routes and working to remind people of how important it is to check on older adults and others who live alone.

## Voluntary disaster prevention organization 富山市 自主防災

A voluntary disaster prevention organization is an organization for local residents to cooperate, and “protect their own community” from disasters. Among these, groups on the neighborhood level are expected to play such roles as **“reviewing emergency shelters and evacuation routes, leading evacuation drills”**, and **“spreading awareness about disaster preparedness”**. By forming “a voluntary disaster prevention organization”, which symbolizes “mutual help” we can enhance our community’s disaster preparedness, and each of us should try to actively participate in evacuation drills.



## System to Support those requiring assistance when evacuating 富山市 要支援者

This is a system in which people wishing to be supported by the community are **registered in a database** and the information is provided to those who are responsible for evacuation support (firefighters, the police, welfare commissioners, neighborhood associations, and voluntary disaster prevention organizations) to help confirm their safety and guide them to evacuate in the event of a disaster.



## Facilities for people requiring assistance 富山市 洪水ハザードマップ

Among the facilities for people in need of assistance (such as social welfare facilities) listed in the Toyama City Local Disaster Prevention Plan, those located in areas expected to be flooded are required to prepare a plan to ensure the safety of users in the event of flooding and conduct evacuation drills. See the **【Charts by River】** on the Toyama City official website for the flood impact of each river.



## Our Evacuation Route

Draw a safe evacuation route from your house to an emergency shelter.

**【Point 1】**  
Make it clear enough so that you can use it in an emergency!

Emergency shelter 1
Anticipated situation
Things and places to think about

**【Point 2】**  
Think about multiple options for safe places to evacuate based on different conditions, including scenarios where you are able to evacuate early or not, for example.

Emergency shelter 2
Anticipated situation
Things and places to think about

**【Anticipated situation】**  
When evacuation information is based on “the basic assumption” / “the maximum assumption”  
If it is possible to evacuate early, including voluntary evacuation / Or if it is not possible  
Weekdays/nights/holidays, etc.

**【Things and places to think about】**  
unfenced waterways/uncovered ditches  
Low ground, steps, etc.

## Try out the quiz

All the answers can be found somewhere in this booklet. See if you can find them!

**Question 1: What is the flood depth at which you need to evacuate from a two-story house, whatever the conditions are?**  
(                    m or more)

**Question 2: What is the evacuation information issued by Toyama City and the corresponding Alert Level that means “everyone must evacuate?”**  
(                    )

**Question 3: Which of the following is the best type of footwear?**  
a. Rubber boots b. Athletic shoes c. Sandals  
(                    )

**Question 4: “Potable water” is on the list of emergency goods. Roughly how much drinking water does one adult need each day?**  
(                    liters)

**Question 5: Which of the following is the correct action to take when evacuating?**  
a. Evacuate alone to make the going easier  
b. Evacuate voluntarily because you feel in danger before the city issues an evacuation notice.  
c. Check the river before evacuating, just in case.  
(                    )

# ! Emergency Supplies Checklist

Category	Item	✓	Category	Item	✓	Category	Item	✓
Evacuation supplies	Flashlight (plus extra batteries)		Daily necessities	Mobile phone (charger and mobile battery)		Clothing	Clothes (both thick and thin layers to regulate body temperature)	
	Portable radio (plus extra batteries)			Knife			Underwear	
	Candles			Can opener			Rain gear	
	Lighters/matches			Blankets and towels		Other	Prescription records [Okusuri techō]	
	Rope			Sleeping bags			First aid medicines (stomach medicine, cold medicine, etc.)	
	Gloves			Tissues			Other medications needed for those with preexisting conditions	
	Stick or umbrella (to check the ground)			Wet wipes			Tarp, newspaper	
Emergency food	Hardtack		Valuables	Portable toilet		Feminine sanitary products		
	Canned food			Cash (including some change)		Diapers and milk/formula		
	Nutritional supplements			Bank books and Seal [inkan]		Evacuation supplies for pets		
	Snacks (candy, etc.)			Health insurance card and driver's license		Backpack		
	Potable water (2-3 liters per day per adult)					Mobile battery		

## ! Emergency contacts

Make a list of contact information for family members, others in the area you would get in touch with when evacuating, relatives or friends you might stay with if you evacuate, your employer, and others you may want to contact.

Relationship	Name	Address	Phone number	Relationship	Name	Address	Phone number

## ! Emergency phone numbers

- Police 110
- Fire and Rescue 119
- Power outages: Hokuriku Electric Power Transmission & Distribution 0120-837119
- Gas leaks: Nihonkai Gas 0570-024-099 (For propane gas leaks, contact the nearest dealer)
- Water outrages, muddy water: Waterworks & Sewerage Bureau 432-8570
- Phone service outage: NTT 113 (Dial 0120-444113 from mobile or PHS)

## ! Other hazard maps issued by Toyama City



← Toyama City Landslide Hazard Map

Toyama City Inland →  
Flooding Hazard Map



← Toyama City Tsunami Hazard Map

Toyama City Earthquake →  
Hazard Map



## ! Disaster Emergency Message Dial

**Record** How to record messages

**Dial 171**

**Press 1**

Enter your phone number (including the area code)

**Record your message**

**PLAY** How to play the recorded messages

**Dial 171**

**Press 2**

Enter your phone number (including the area code)

**Play the message for you**

## ! Inquiries

River Improvement Div., Public Works Construction Dept. Toyama City TEL 076-443-2221

Date issued: June 2020 (Revised September 2021)