

Study on non-structural disaster management of middle size city in Japan

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1 Introduction

Because of geographical condition, meteorological conditions and social condition, Japan is subject to frequent natural disasters such as flood and landslide. As a result, there is a great loss of people's lives and property due to natural disasters. Especially, Landslides and flooding caused more than 200 deaths by torrential rain in 2018.

2 Hazard Map

In non-structural disaster measures, one of the most important disaster management measures is hazard map. It shows not only flood and land slide hazard area but also evacuation shelter information and it can help the people to evacuate the flood and land slide disaster. In addition, information on evacuation methods, past disasters, and information collection way is also shown. Furthermore, explain animation was made and up loaded to YouTube.



3 Estimate the Number of Evacuees

Estimate the number of evacuees is very important. For the analysis, population, information of building, sediment disaster and simulation result of estimating the flood inundation area, depth, continued flooding times, overflow, bank erosion are required. Not only horizontal evacuation but also vertical evacuation is important, too. As a result of the estimate the number of evacuees, vacancy rate of shelters is calculated. It can help the flood evacuation plan.



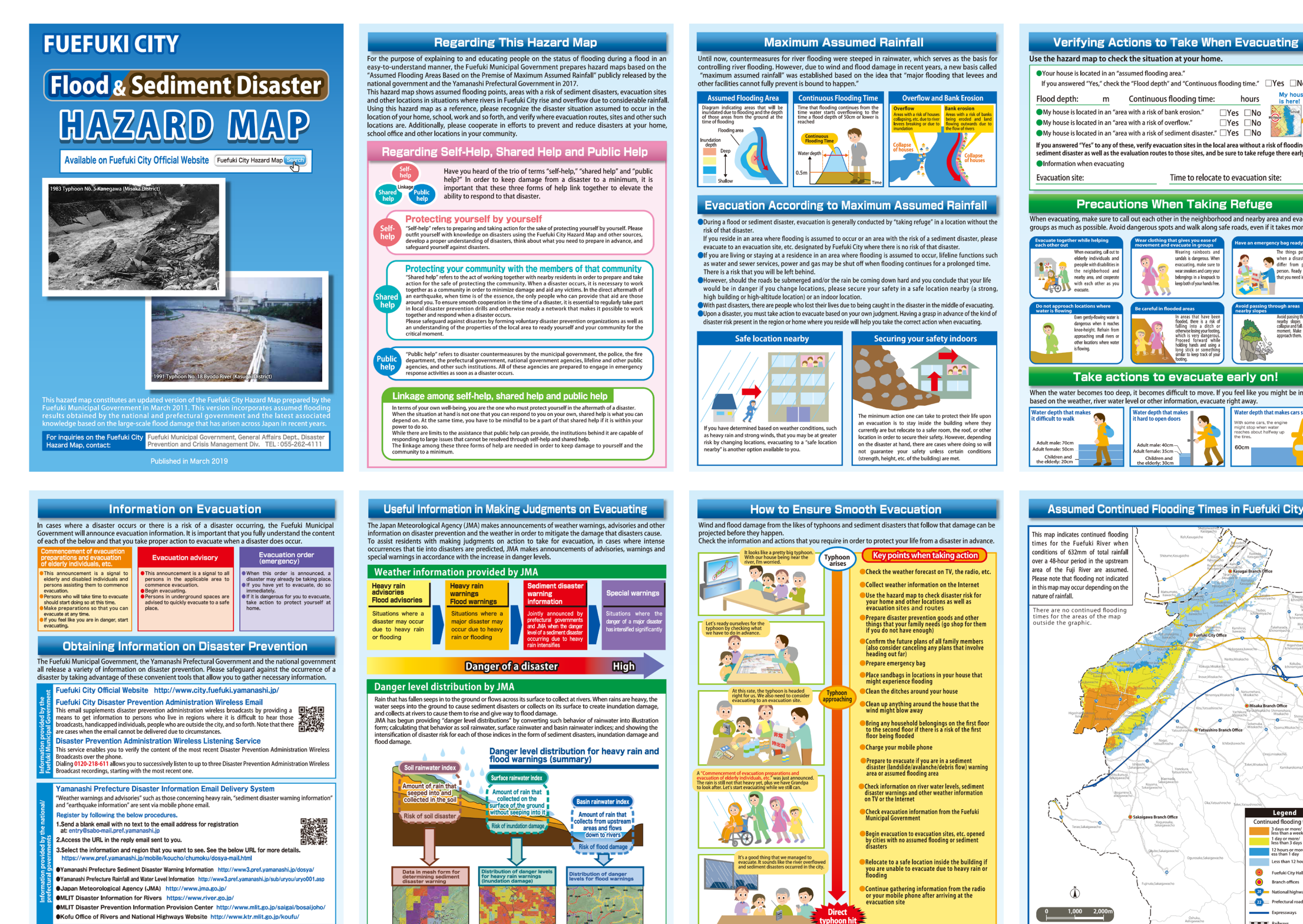
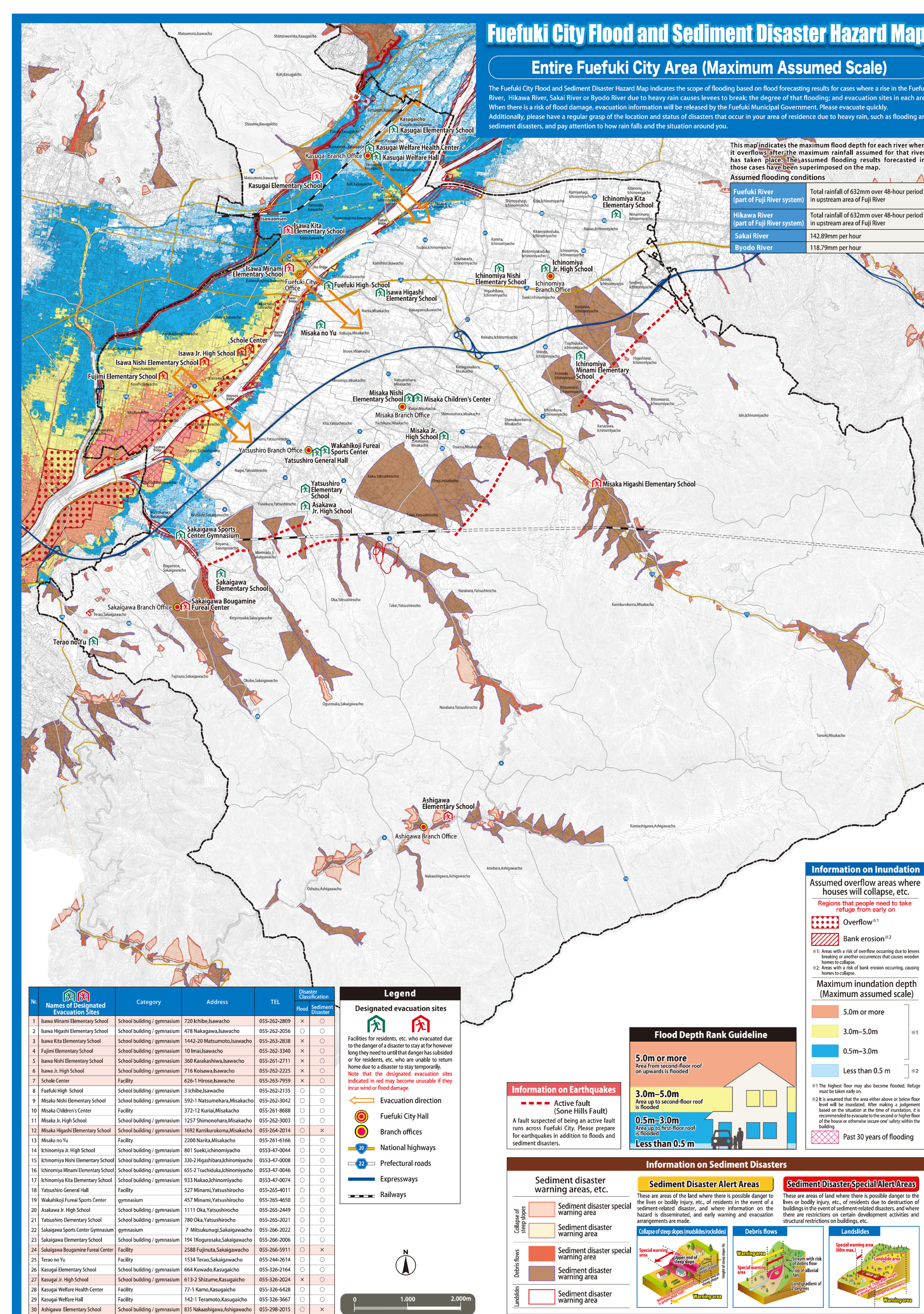
Horizontal evacuation

If you have determined based on weather conditions, that you may be at greater risk by changing locations, evacuating to a safe location nearby is another option available to you.



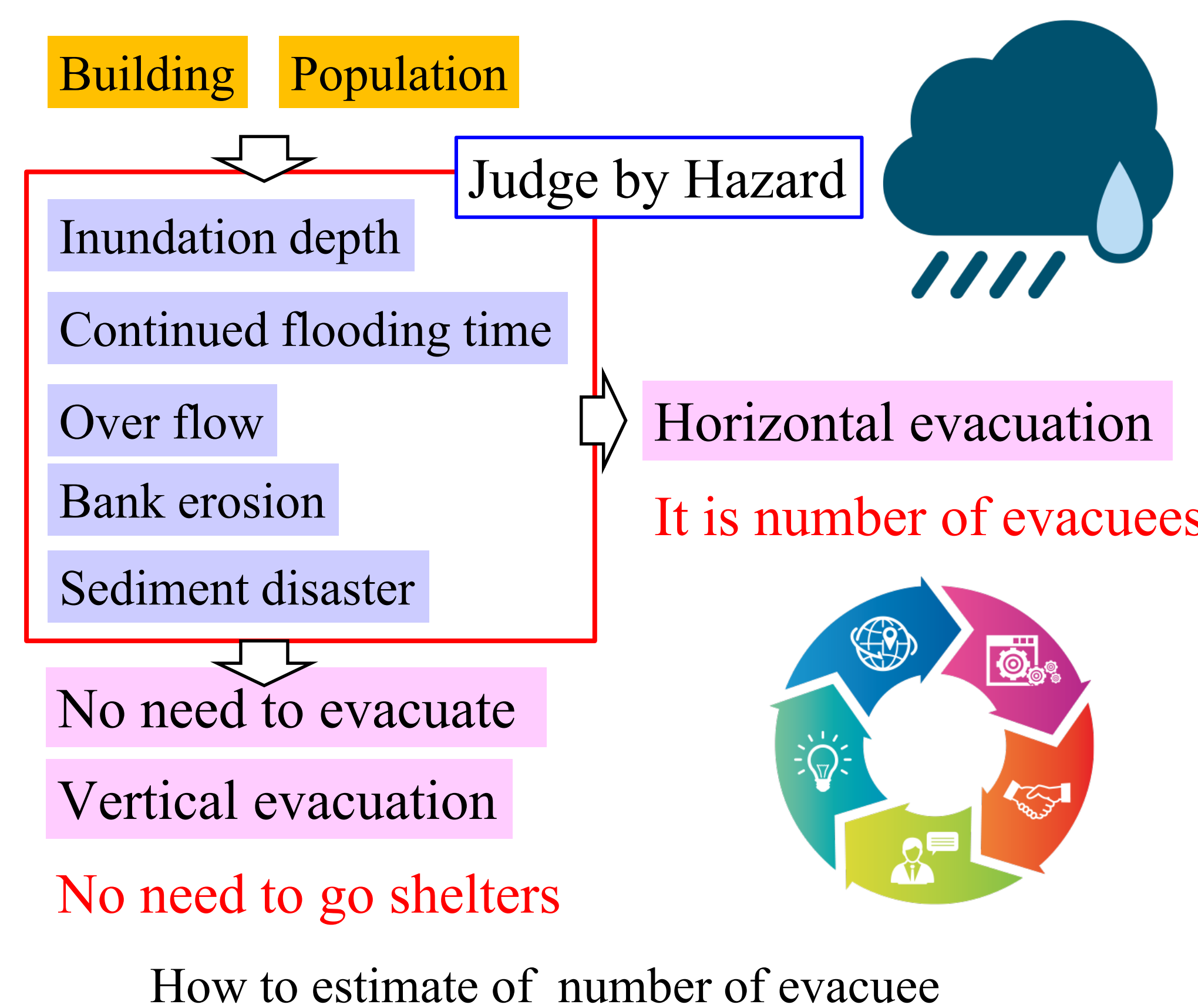
Vertical evacuation

The minimum action one can take to protect their life upon an evacuation is to stay inside the building.



YouTube

Short ver. : <https://www.youtube.com/watch?v=qf7oLGFMIgw>
Long ver. : <https://www.youtube.com/watch?v=BxHMjmDhFsg>



How to estimate of number of evacuee

4 Conclusion

This study reported non-structural disaster management of middle size city in Japan.

⇒ This study introduced Hazard Map.

⇒ This study introduced explain animaion of Hazard map.

⇒ This study introduced Estimate the Number of Evacuees.

Disaster	Number of evacuees	
Fufuki River	13,959	
Hikawa River	205	
Sakai River	151	
Byodo River	981	
Flood	14,911	
Collapse of steep slope	262	
Debris flows	3,948	
Landslide	98	
Sediment Disaster	4,203	
Flood and Sediment Disaster	19,078	
	Long-term evacuation	Short-term evacuation
Flood	2,614	7,353
Sediment Disaster	3,294	9,429

Number of evacuees and Capacity of shelter