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Protect the Life from River Flood

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1. Introduction

The September 2015 Kanto-Tohoku Heavy Rain caused serious damage in many places in the Eastern Japan. Particularly, the levee of the Kinugawa River broke around noon of September 10th and an area of about 40 km^2 was flooded in Joso-shi, Ibaraki, and two persons were killed. Further, many residents failed to evacuate and some of them were rescued by helicopter from houses being washed away. Moreover, at night of the 10th, the southern part of Joso-shi was also hit by a large scale flood caused by inland water flood and flood flow from the broken levee, and many houses were isolated, so large-scale rescue using helicopters and boats was carried out on and after the 11th. As the result, more than 4,000 people were rescued, which was achieved under conditions favorable for helicopter flying and rescue activity, including favorable wind and rain conditions, occurrence of levee break in the daytime, and presence of a heliport near the site. We should recognize that there might have been a lot of victims if the flood had occurred under unfavorable conditions.

The following briefly describes the hazardous events caused by the river flood as well as the matters that should be recognized by individuals to protect their lives.

2. Collapse and washing-away of houses by levee break

At Kamimisaka, Joso-shi, the levee broke about 12:50 on September 10th due to overflow and the houses located at the front of the broken levee began to collapse or be washed away soon after the break. As a result of the investigation of the washing-away of the houses, etc., it was found that the flood flow caused by the break of the levee with the relative height of about 4 m or less washed away about 20 houses located in the area 150 m from the broken levee (see Figure 1). If levee break in a larger scale occurs, houses in a wider area are expected to be washed away, but it is difficult for local residents etc. to have an image in advance about the extent and area where such an event occurs. Therefore, guidelines for horizontal escape would be needed.

3. Large-scale inundation by flood flow, etc.

The flood flow generated about noon of the 10th ran down to the south along the landside and caused inundation in a wide area up to the south of Joso-shi in combination with the inland flow by the Hakkenbori River. Consequently, more than 4,000 households were inundated above the floor level and some of the inundated houses were temporarily isolated. The flood water was mostly drained on the 19th as the result of drainage activities by the Hakkenbori Drainage Pump Station and the drainage pump vehicles that assembled from many places across the country. However, the living environment after the flood was horrible since it was summer and air conditioners and other home appliances as well as toilet were unavailable due to power breakdown and suspension of water supply. There was the risk of occurrence of health damage etc. if there were delay in drainage of inundation.

4. Conclusion

After the occurrence of this flood, the Ministry of Land, Infrastructure, Transport and Tourism launched the Vision for Reconstructing Society Aware of Water Disaster Prevention, in which the Ministry aims to promote information provision for local residents to be able to detect risk and evacuate at their own decision. Taking this opportunity, local residents are recommended to confirm the location of their houses with the hazard map etc. and to consider unexpected problems and how to protect their lives.

Figure 1: Washing-away of houses