

Inundation of the eastern part of Joso city, Ibaraki prefecture caused by heavy rainfall disaster in Kanto and Tohoku area

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Heavy rainfall of September 2015 in Kanto and Tohoku area caused severe flood in the eastern part of Joso city, Ibaraki prefecture. Kinu River water started to flow over banks at around 6 am at Wakamiyado district and collapse of Kinu River bank at around 12:50 PM at Kamimisaka district on 10<sup>th</sup> September resulted in extensive inundation of Ishige area located on natural levees. Then, flood moved southward along the Hakkenbori River and inundation of Mitsukaido area started at the night of 10<sup>th</sup> September to widely inundate the area nearby at 1 pm on 11<sup>th</sup> September. The maximum inundation depth confirmed by authors from the flood marks remained on the building walls are less than 1.0 m on natural levees, but it reaches 1.5 m at the maximum in core portion of the flood flow identified by flood deposits. In the floodplain, deeper inundation occurred than natural levees, and more than 2.5 m inundation was found at Okishinden and Jyukkamachi Okishinden district. Deeper inundation was observed in the southern part of the floodplain because higher natural levee surfaces at Mitsukaido area probably prevented to drain water smoothly. Although inundation of Ishige area was comparatively short and ended by the morning of 11<sup>th</sup> September, inundation of Mitsukaido area prolonged and continued until at least the morning of 13<sup>th</sup> September in the area north of Shinhakenbori River, and until 16<sup>th</sup> along the Hekenbori River. Restoration of destroyed river bank and roads was prioritized, but cleanings of flood sediments and debris take long time and still households and offices need a certain time to be fully recovered. Also, some important facilities such as hospital and school experienced inundation of more than 1.5 m. Therefore, we need to record the flood impacts and evaluate them appropriately for the formulation of flood disaster risk reduction strategies in the area.

Keywords: flood, Joso city, Kinu River, inundation depth