

## **Roles of natural levees in the Ara River alluvial fan on flood management**

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**Abstract** The Ara River alluvial fan has a lot of natural levees. It is considered that the natural levees effect flood inundation flow, but there are few studies about the roles of natural levees from the point of view of flood control and management. In this study, by plotting positions of the remains of communities (from BC20 000 to AD1192) on the topographical classification map, it is clarified that many remains of communities in the Ara River alluvial fan were developed on the natural levees. Roads and railways in the Ara River alluvial fan were constructed in order to connect the natural levees in the Meiji-period. From the Ara River hazard map, flood depths on the natural levees are shallow compared with surrounding areas. The embankments of roads and railways on the natural levees are useful measures for preventing spread of inundation flow.

**Key words** alluvial fan; natural levee; development of communities' flood management