

The landform and flood characteristics of the Iron Gate on the ancient road from Samarkand to Bamian, south Uzbekistan

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“The Iron Gate” is located on the ancient road from Samarkand, which has been one of the largest cities in the central Asia from ancient times, via Termes, where is the crossing point of the Amudarya, to Bamian, which has been one of the important cities as Buddhism. The Iron Gate is a narrow gorge located several kilometers east of the main mountain ridge of the Hissar Mountains. Its length is 2 kilometers and its width of the narrowest part is 10 meters. Both valley side slopes are very steep and their relative height is about 200 meters. Genjo, who is one of the most famous Buddhism priest of 7th century walked through the gorge on the way to India.

Debris flow deposits, whose maximum diameter in b-axis is over 50cm, and sorted and clear laminated flood sediments, which are more rounded and smaller sandy gravels are distributed in the canyon. The relative height between these surface top and valley bottom is several meters. Present valley floor is buried valley bottom, whose surface is flat or covered with lobate large gravel deposits. Although there is poor vegetation on the both valley side slopes and surface of the sediments, only sporadic shrubs are on the valley bottom and both side of the eroded cliff of the sediments. Heavy flood event frequent occurred in this region and debris flow and sediment flow buried the Iron Gate canyon section. After the event the buried valley bottom was dissected by water flow. Sediment transport events repeated more than once in a year and heavy flood event repeated once in several years. Samarkand and Termes have precipitation between October and April. The temperature in cold season of the city is below zero and this region has some snow. Snow melt is accelerated by rain in March and April and flood events are caused in this region.

The reason why this important road was constructed in the area of such higher risk of flood is that this place was the important checkpoint of this road. The forts of this region, located the ridge of hill, were favorable to watch passers pass through the canyon road, where sometimes closed by flood.

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