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# Flood Problematic of the City of Ljubljana and the September 2010 Flood

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In the contribution, the flood protection problematic of the capital of the Republic of Slovenia, the Ljubljana city, is presented. Ljubljana lies in the southern part of the Ljubljana basin, crossing the moor on the south and the north of Ljubljana field. The tectonic subsidence of the area in the geological past has made it an important confluence of the rivers. The area of the City of Ljubljana has a long history of various flood protection measures (e.g. first waterworks in the Ljubljanica River channel by the Romans, Grubar flood canal excavation in 1780 for diversion of Ljubljanica moor floodwaters away from the city center, weir construction on the Ljubljanica River in 1950s for floodwater manipulation and extended widening of the Mali graben channel in the 1970s). However, despite the abovementioned flood protection efforts, many parts of the urban area of the City of Ljubljana is presently heavily threatened by the floods as the one experienced in September 2010. The southern part of the city, particularly in the Ljubljana moor, is exposed to a risk of catastrophic, medium and even small flood events. In the northern part of Ljubljana, at the Sava River area, there is a risk of catastrophic medium floods events. Most heavily endangered is the southern part of the city in the vicinity of the Ljubljanica River and its tributaries. The western part between Podutik and Rožna dolina is endangered by Glinščica stream high waters and its tributaries, south western part of of the city (the whole Vič area) by Gradaščica with Horjulka, southern part of the Rudnik suburbs with moor floodwaters and the central and northern part of the Rudnik by tributaries from Golovec and inland waters. The main reasons for the present insufficient flood protection of the City of Ljubljana lies especially in the discontinuities and mutual exclusion of flood protection measures planning and overall spatial development of the urbanized areas. As a consequence, some of the past flood protection measures could no longer function properly due to intensive urbanization of some areas (e.g. the Mali graben channel). On the other hand, some of the urbanized Ljubljanica moor areas are becoming increasingly flood vulnerable due to past long term intensive moor area drainage and consequent slow decreasing of the overall ground levels.