

150 years of land degradation and development: loss of habitats, natural resources due to quarrying and industrialization followed by land reclamation in the heart of Budapest city

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The urban development and land degradation is an accelerated process in the 21st century; however several examples are known when this happened in the past. A historic case study is discussed in this research when clump of three former small towns (named: Buda, Pest and Óbuda) became a million population city more than hundred years ago invoking significant land degradation, drastic and surprising changes in land use. Budapest which is now the capital of Hungary has seen rapid land use changes in the past 150 years especially from 1850'ies to early 20th century. The population of the city rapidly grown from the end of 19th century to early 20th century; i.e. it is tripled from 1880 to 1920 and reached nearly 1 million in 40 years. This population boom induced significant land degradation, changes in land use and loss of habitats. The paper presents examples how the land use has changed in the past 105 years with historic maps and interpreted cases suggesting different pathways leading to land degradation. The first one focuses on vineyards and grape cultivation and explains how these areas were first converted to limestone quarries to provide construction material to the city and then transformed to urban habitat in the early 20th century again. The cellars – former quarry galleries - than were used for housing (urban habitat) and later were used as storage facilities and mushroom cultivation sites. At present these subsurface openings cause high risk of land development (collapse) and limit the land use of the given area. The current paper also outlines the development of the city via the perspective of natural resources, since drinking water and industrial water need modified the land development and urbanization. Another example is also given how the brewery industry exploited natural resources and the surface water use was shifted to exploitation of karstic waters causing land degradation and drop of water table. Additional example demonstrates how the former drifting sand dunes was conquest and now form parts of the urban habitat. Finally, the 125-year history of gradual loosing of wetland habitats and flood plain forests due to university campus development is also shown. These examples clearly indicate that urban development cause various grades of land degradation and also bring unexpected risks of potential land use.