

**COUNCIL OF EUROPE / CONSEIL DE L'EUROPE
EUROPEAN LANDSCAPE CONVENTION /
CONVENTION EUROPEENNE DU PAYSAGE**

***22^e REUNION DES ATELIERS DU CONSEIL DE L'EUROPE POUR LA MISE EN
ŒUVRE DE LA CONVENTION SUR LE PAYSAGE***

***22nd MEETING OF THE WORKSHOPS FOR THE IMPLEMENTATION
OF THE COUNCIL OF EUROPE LANDSCAPE CONVENTION***

***“Water, landscape and citizenship in the face of global change”
« Eau, paysage et citoyenneté face aux changements mondiaux »***

***Seville, Spain / Séville, Espagne, 14-15 March / mars 2019
Study visit, / Visite d'études, 16 March / mars 2019***

WORKSHOP 2 – Water landscapes: international experiences

Evolution challenges of urban river landscape –the example of the city of Zagreb

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Zagreb, the capital city of the Republic of Croatia, is located at the foot of Medvednica mountain in the Sava river valley. The River Sava water course in Zagreb was incised about 100 metres into gravel layers of the riverbank. One third of the administrative area of Zagreb's territory consists of forest; the biggest is Medvednica Nature Park; one third is agricultural land and one third of the territory is urban settlements.

The history of Zagreb's urban development begins in the Middle Ages. The medieval city of Zagreb is located away from the River Sava on the lowest slopes of Medvednica mountain. Urban development in the second half of the 19th century was generated by the development of the railway and locating industrial facilities in the lowland of the old city. With the stronger development of the downtown and the town villages in the Sava valley during the second half of the 19th century, the unregulated river was one of the main limiting factors of the more intensive urban transformation.

The River Sava flooded the entire downtown area and floodplains at the end of 19th century, so regulation of the river through Zagreb was begun in 1899. The purpose of the regulation project was to remove meanders, protect homes from the flood and allow soil treatment which was infertile until then. With the realisation of the project the River Sava became a single course; numerous sections were drained and the northern and southern shores of the Sava were established. The river then gained its characteristic course in the form of a regular arch.

Regulation of the river accelerated urban development of lowland parts of the city during the first decades of the 20th century. After the Second World War, the entire quarter between the railway line and Sava was built up, and since the mid-1950s the residential districts named Novi Zagreb and the Zagreb Fair in south of Sava have also been expanded.

During the second half of the 20th century, the city administration was trying to solve the problem of urbanisation areas along the river, but all attempts remained as unrealised plans. The Master plans of the City of Zagreb from 1948 until 2011 divided the area along the northern coast of the river into the zones of central and public facilities and residential settlements. With architectural competitions which were carried out in the 80s and 90s, the construction of residential islands in the river and the representative public buildings in the northern coast were proposed. Recreational facilities were planned along the southern coast.

Floods as a consequence of climate change are more and more frequent, so the purpose of the actual strategic city and regional project *Zagreb - Sava* include a broader river area from the border with the Republic of Slovenia to the city of Sisak. The goals of the Project are flood protection, environmental protection, improvement of the existing and development of new waterworks, electricity production, improvement of agriculture, creating the conditions for the development of tourism, sport and recreation. It is planned to achieve this by small hydro power plants – windmills under water. Flood security is planned by building 17 watercourses.

The project *Zagreb on Sava* was designed to provide diverse recreational facilities in the area along the river embankment. Small projects are being proposed such as the recreational area for citizens that can be removed when the river floods.

At the same time, the City administration invited potential investors to participate in realisation of the project *City in the City*. This project should have residential and business buildings, promenades, new roads, shopping centres, catering facilities on the area of a Hippodrome and the Zagreb Fair.

Thanks to unrealised projects the Sava river landscape contains important biodiversity and natural value. A river landscape is the base for the green infrastructure of the city, as well as the Medvednica mountain. They are the most important green resources of Zagreb, so in the future Sava river landscape could be treated as a huge green park.

In conclusion, the importance of the urban river landscape is for water resources, nature protection, recreational areas, also for design of urban riverfront areas. Environmental, social, natural, cultural values (green spaces, urban ecology and life quality) provide economic benefits, new opportunities for inhabitants and improvement of river in morphological and economic sense.

In the future the main objectives are to protect, use and develop the urban river landscape for future generations. Sustainable ecological characteristics of river and boundaries of flooding areas should be determined and dealt with the city development plans. It could be possible to provide protection from flood risk and also to create modern recreational, lively and diverse places.