



POLITECNICO
DI TORINO

Honors thesis

DEGREE IN MASTER OF SCIENCE IN ARCHITECTURE
(CONSTRUCTION)

Abstract

**Watersquare: management of stormwater and urban
regeneration. A proposal for Turin.**

Tutor

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by

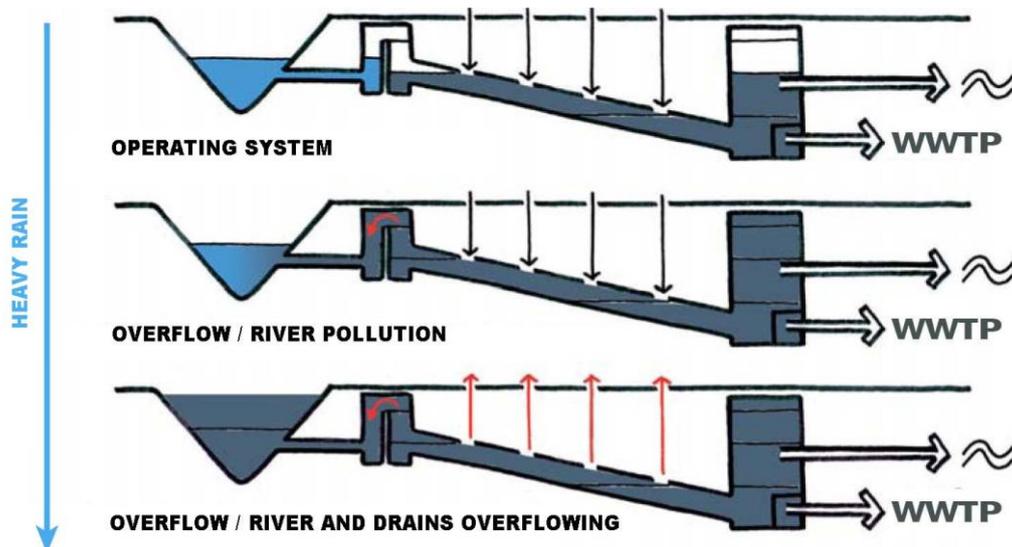
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This thesis deals with the issue of the meteoric washout in urban environment, analyzing systems for containment and storage of the rain water, which also may turn into opportunities for formal quality of open spaces: it refers to "Water Squares", a recent technology invented and developed in the urban area of the city of Rotterdam.

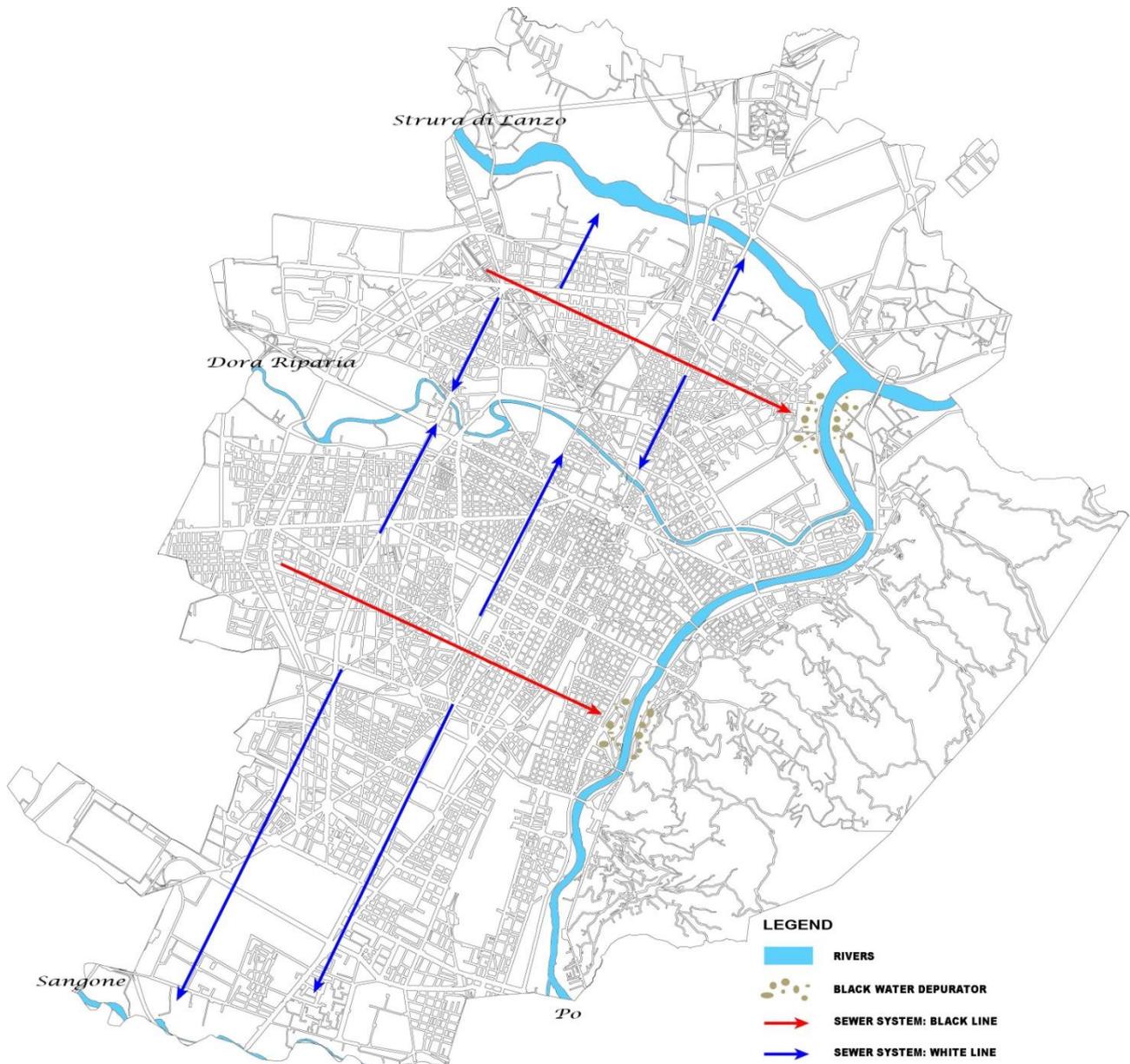
Originating from the consideration that territorially the Netherlands have specific geomorphological characteristics, which contribute to the occurrence of problems such as flooding or overflowing of the sewage system, it was decided to study and analyze this technology, strongly rooted in the Netherlands, where issues related to heavy rains are becoming more frequent in urban areas. Cities are in fact the place where, by definition, the greatest changes occur in terms of land use and exploitation of natural resources. Nevertheless the relationship between water and cities did not see in parallel the development of effective solutions to problems and needs, that become more and more evident with time, especially in view of the effects of recent climatic changes. A proper management of storm water runoff plays a fundamental role both in limiting the phenomena of flooding and in reducing pollution on receiving water bodies. This issue should, therefore, be carefully considered in the planning and design of sewage systems and treatment plants of urban waste water.

Also our Country faces periodically issues related to excessive water collection into sewage systems; here in particular, usually sewage systems collect in the same manifold both storm water and waste water. This approach may cause on one side damages related to water collection exceeding the design limit of the duct; on the other side, issues will raise related to the pollution of the spillways in which, during emergencies, untreated waste water would be discharged. In fact, treatment plants are often not designed to cope with storm phenomena of strong intensity, resulting into excessive and sudden water flow.



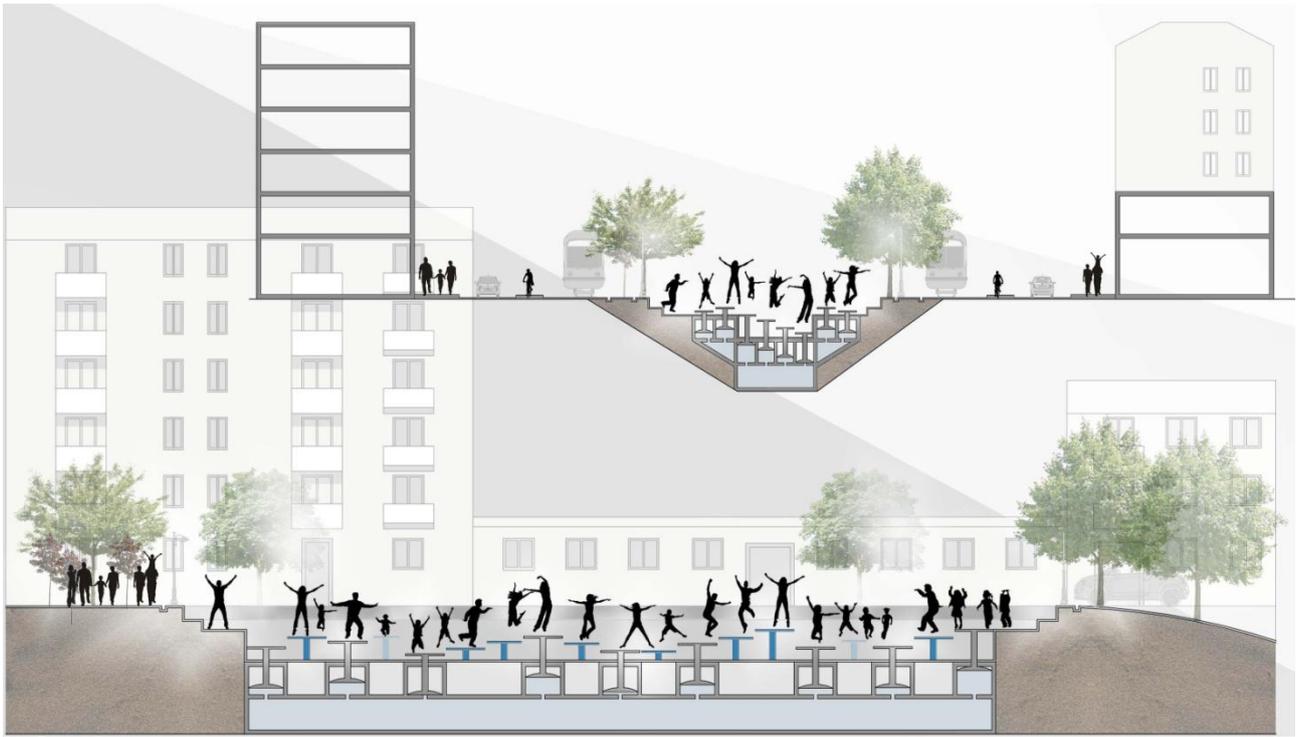
Schematics of the spill in a sewage system

The thesis then analyzes limits and potentials of several typologies of reservoirs like the Water Squares. This will become an opportunity for studying the example of Turin urban context with its dual sewing system.



Schematics of the Turin dual sewing system

Exporting the application from the urban context of Rotterdam, the concept has been adapted to a specific urban area of Turin, named the "Trincerone". The proposal herein described is aimed at the formal development of a Turin area, subject, for years now, to regeneration and restructuring plans. An alternative proposal is therefore here presented, aimed to respond positively to the ongoing general redefinition of the city landscape and, at the same time, to provide advanced design solutions able to stimulate and draw attention to the important issue of the relationship between water and the city.



Transverse and longitudinal sections of the water square “*giochi modulari*”, one of the four typologies of reservoirs dedicated to the “Trincerone” area.

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