

# CIVIL AND ENVIRONMENTAL ENGINEERING

## MUR DM 118 - Restoration of urban fluvial corridors

<b>Funded By</b>	Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture [P.iva/CF:00518460019] MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584]
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<b>Context of the research activity</b>	<p>The research activity will focus on design solutions for the restoration of the fluvial corridors of the Metropolitan City of Turin, with particular attention to restoring the ecosystem services of the four main rivers that cross the town: Po, Dora Riparia, Stura di Lanzo, Sangone. The project will be considered by the municipality for the forthcoming renewal of the regulatory plan.</p> <p>Progetto finanziato nell'ambito del PNRR – DM 118/2023 - CUP E14D23001710006</p>
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	<p>Rivers are essential natural resources that play a crucial role in supporting ecosystems, providing water for human consumption, and offering recreational opportunities. However, urbanization and human activities have often resulted in the degradation and alteration of rivers, leading to various environmental and social issues. To mitigate these challenges, the concept of river restoration has gained significant attention in recent years. River restoration in urban environments refers to the process of revitalizing and rehabilitating urban rivers to improve their ecological health, enhance biodiversity, and create more sustainable urban spaces. This approach recognizes the importance of integrating natural systems within cities and aims to restore the functions and values of rivers that have been impacted by urban development.</p> <p>To achieve successful river restoration in urban environments, collaboration among various stakeholders is crucial. This includes government agencies, local communities, environmental organizations, and urban planners. The restoration process typically involves comprehensive planning, scientific assessment, community involvement, and ongoing monitoring to ensure the long-term success of restoration efforts. River restoration in urban environments is a vital approach to address the ecological, social, and</p>
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## Objectives

economic challenges associated with urbanization. By rehabilitating urban rivers, we can improve water quality, restore natural habitats, reduce flood risks, enhance recreational opportunities, and create more sustainable and resilient cities. With careful planning and community engagement, we can restore the beauty and functionality of urban rivers, ultimately benefiting both people and the environment.

The present Ph.D. will have the unique opportunity to investigate the complex dynamics of the urban river ecosystems of the Turin Metropolitan City and develop sustainable strategies for the rehabilitation of the fluvial corridor of the Po, Dora Riparia, Sangone, Stura di Lanzo. Working closely with an interdisciplinary team, the candidate will explore a range of topics, including water quality, biodiversity, hydrology, and community engagement. Key responsibilities and opportunities: i) Conduct fieldwork to assess the current state of urban rivers and identify areas for improvement. ii) Collaborating with local communities, stakeholders, and policymakers to understand their needs and incorporate their perspectives into restoration plans. iii) Analyzing data and employing advanced modeling techniques to evaluate the ecological and hydrological processes in urban river systems. iv) Developing innovative restoration strategies that balance ecological integrity, social well-being, and urban development. v) Publishing your findings in reputable scientific journals and presenting them at national and international conferences.

The doctorate project will engage the co-supervision of academic and non-academic people, with the endorsement of the municipality.

## Skills and competencies for the development of the activity

Basic knowledge of hydraulics and hydrology. Language knowledge: italian and english.