SAPIENZA
UNIVERSITÀ DI ROMA

DEPARTMENT OF CIVIL, BUILDING AND ENVIRONMENTAL ENGINEERING

Teaching - Bachelor and Master Programmes

Contribution to the SDGs

ENVIRONMENTAL ENGINEERING

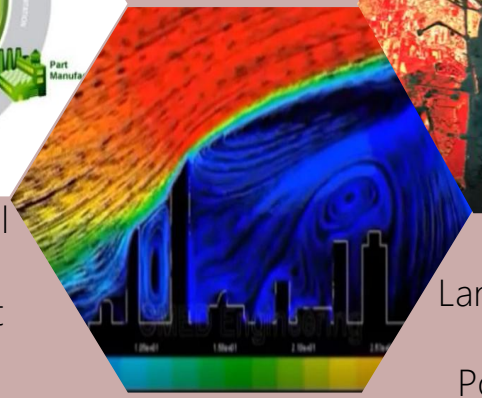
Three specialisation curricula:

- Climate Change Adaptation and Mitigation
- Hydraulic resource management and environmental restoration
- Land and soil protection

Main areas of concern:

Water & groundwater management. Wastewater Treatment

Environmental modeling & assessment



Air pollution, GHG mitigation and climate change

Land monitoring & protection. Pollution control

Waste management, recycling and treatment

Land & coast management

Natural risk assessment & mitigation

BUILDING ENGINEERING–ARCHITECTURE

To train highly qualified engineers proficient in architectural and engineering tools, capable of designing, managing, and overseeing construction projects from concept to execution

- Architectural, technological and urban design
- Plant engineering and building energy design
- Structural design and buildings vulnerability

A degree in Building Engineering-Architecture allows to join the **Professional Associations of both Engineers and Architects** in the European Union. According to Directive 2005/36/EC, the graduates can operate professionally in both fields of architecture and engineering

ENVIRONMENTAL AND SUSTAINABLE BUILDING ENGINEERING

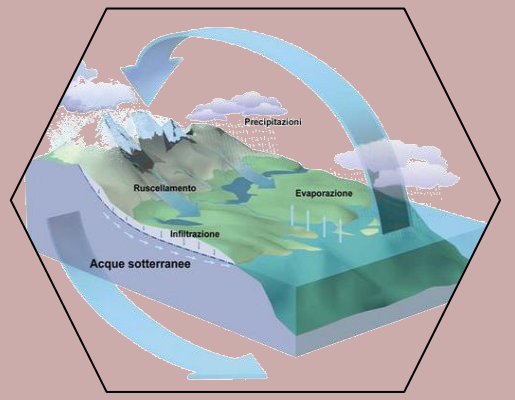
Main areas of concern:

Remote sensing & GIS, Digital modeling for architecture, Building design and H-BIM for architectural renovation

Architectural design for sustainable building, Environmental and Urban Planning

Water and solid waste treatment plants, Urban quality and sustainable transportation, Hydraulics infrastructures

Structural dynamics, Foundation and earth retaining structures, Groundwater management



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DEPARTMENT OF CIVIL, BUILDING AND ENVIRONMENTAL ENGINEERING

Teaching – PhD Programs – Masters – Capacity building

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High-level training activities

The PhD schools and the post-graduate level teaching prove to be of essential assistance to various UN and territorial agencies, NGOs, stakeholders:

- IHE-Delft
- civil protection
- basin authorities
- national and regional environmental protection agencies
- state technical services
- water, energy or waste management companies
- research organizations (e.g. CIMA foundation, JRC)
- private or public planning companies
- city municipalities

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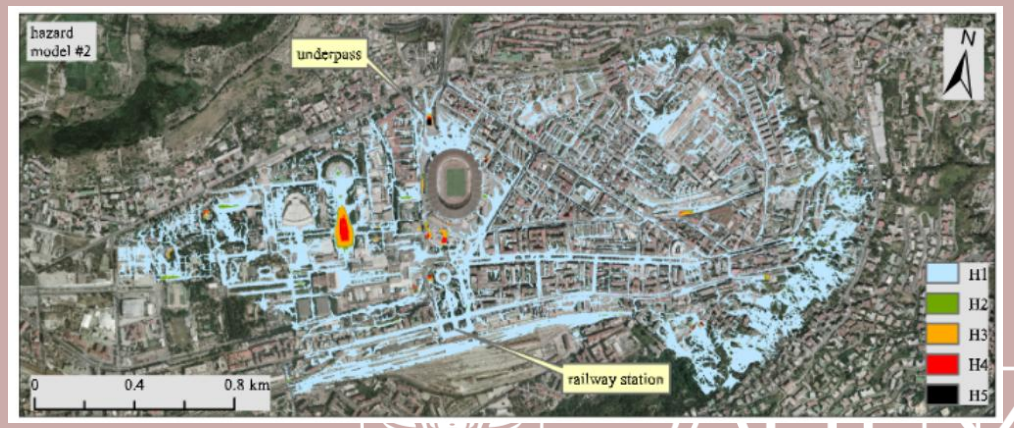
Multi Risk Resilience of Critical Infrastructures

Objectives

- Raising Public Awareness
- Promoting societal resilience and climate adaptation
- Strengthening public support for sustainable policies
- Improve infrastructures resilience

Effect of drought. Adnkronos

Padulano, R., Rianna, G., Costabile, P., Costanzo, C., Del Giudice, G., & Mercogliano, P. (2021). Propagation of variability in climate projections within urban flood modelling: A multi-purpose impact analysis. *Journal of Hydrology*, *602*, 126756.



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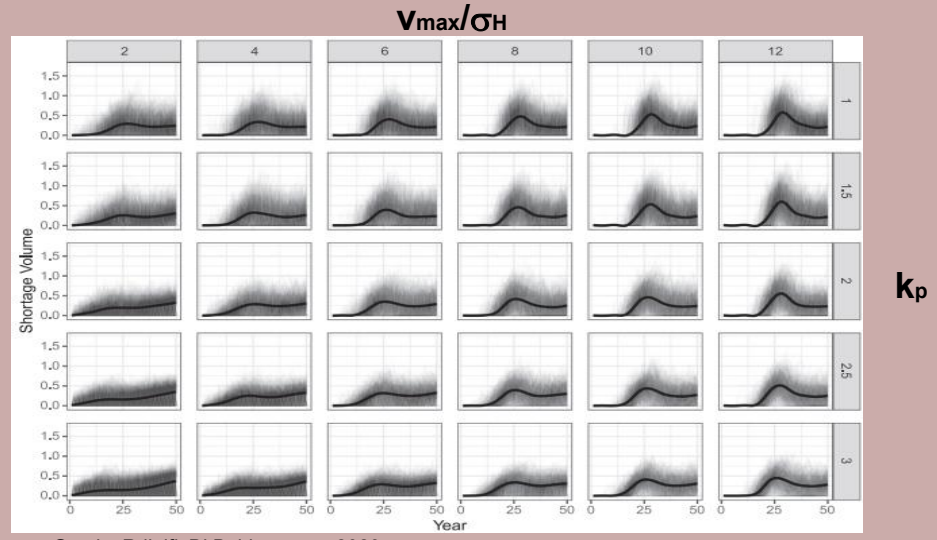
Return

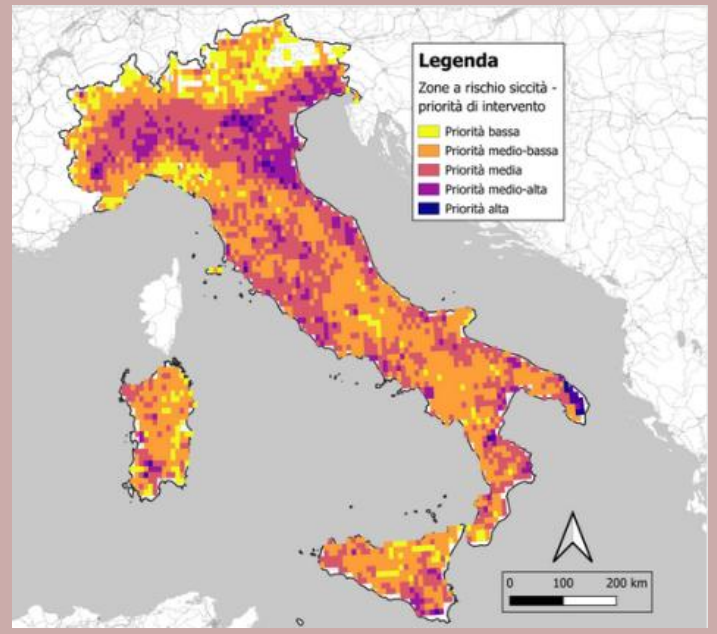
Water scarcity risk mitigation & WEFE Nexus

Definition of reservoir operating guidelines helping in reducing the risk of shortages in the face of changing supplies and/or demands



Garcia, Rdiolfi, Di Baldassarre., 2020

Assessment of agricultural vulnerability to drought: improving the Water-Food & WEFE Nexus



Co-Principal Investigator: Elena Ridolfi

Funded among Projects of Relevant National Interest National Program (PRIN 2022)

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Earth Observation (PhD school)

Goal and objectives

- To train doctoral-level professionals with transversal and integrated skills in Earth Observation (EO), Geomatics/Geoinformation, ICT, and administrative and legal domains.
- To support the exploitation and development of the Copernicus and IRIDE programmes.
- To propose and design new services driven by end-user needs.
- Training programs in the digital era

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Engineering-based Architecture and Urban Planning (PhD school)

Architectural Engineering

Urban Studies

Climate-change resilience in the built environment

Buildings

Open Spaces

Water in cities

Greenery

Microclimate

Energy performance

Thermal performance

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Architectural Engineering – Research related to the Academy Network topics

❑ Built environment performance

Resilience to climate changes, urban microclimate and building energy performance, extreme rainfall runoff, droughts, UHI, in/outdoor environmental quality

❑ Digital design and construction

Parametric and BIM-based approaches

❑ Built heritage

Renovation, adaptive reuse and conservation

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Water in the built environment

Water in the built environment of urban areas: how can the built environment improve urban resilience and comfort of inhabitants to increasingly extreme rain and droughts events?
i.e., extreme rain events, droughts, Urban Heat Island Effect and heatwaves

Heatwaves

- E.g., 70,000 excess deaths (Europe, 2003)
- Increasingly exacerbated and frequent

Need to cool down urban surfaces

More frequent and intense extreme precipitations

Need to aim at **pluvial runoff reduction**, thus flooding risk reduction and pedestrians' safety

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inURBECitizens

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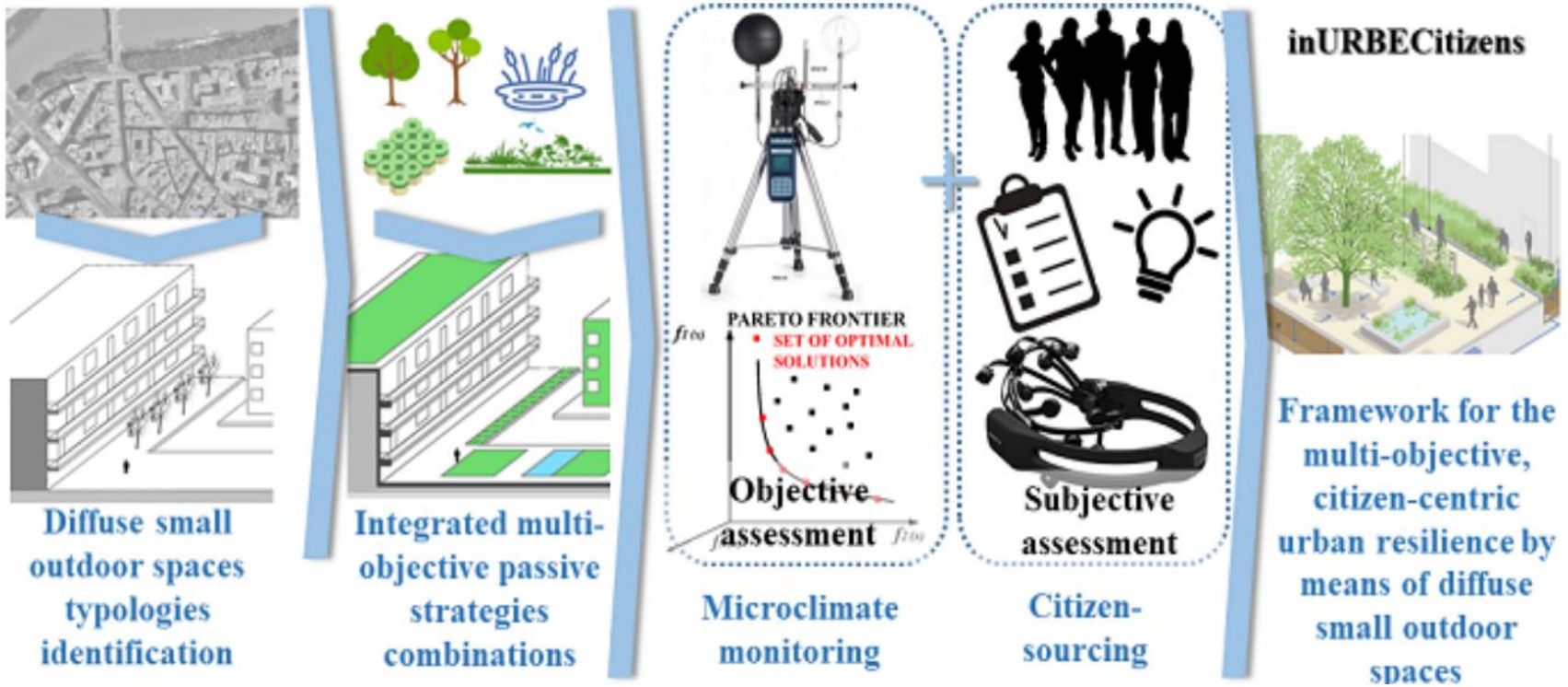
inURBECitizens: strengthening INtegrated Urban climate Resilience in the Built Environment through multi-objective strategies and Citizens involvement

inURBE Citizens



KEYWORDS
Architectural Engineering
Climate change
Heatwaves
Pluvial Flooding
Built Environment Resilience
Urban areas
Crowd
Citizens

Principal Investigator: Federica Rosso

Funded among Projects of Relevant National Interest National Program (PRIN PNRR 2022)

MUR PRIN 2022 PNRR

Thank you very much for your kind attention