Istanbul

Aim

To analyse the systemic risks and impacts of disasters on Istanbul's urban dynamics, focusing on demography, social economy, and the built environment.

Why

Istanbul represents megacities facing natural and human-made threats, with significant impacts on both local and global scales.

Why Istanbul

As a megacity with over 10 million residents, Istanbul experiences unique challenges, including earthquakes and floods, alongside rapid population growth and urban expansion.

Where do we want to go

Develop strategies for disaster risk assessment and mitigation to improve resilience and quality of life in Istanbul.

Stakeholders involved

- Government officials
- Civil society organizations
- Academic institutions
- Urban planners

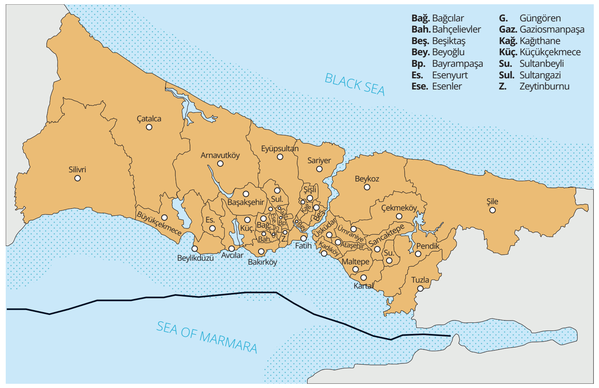
Sectors

- Systemic risks
- Society
- Built-up enviroment
- Economy

Hazards

- Earthquake induced Hazards
- Earthquake

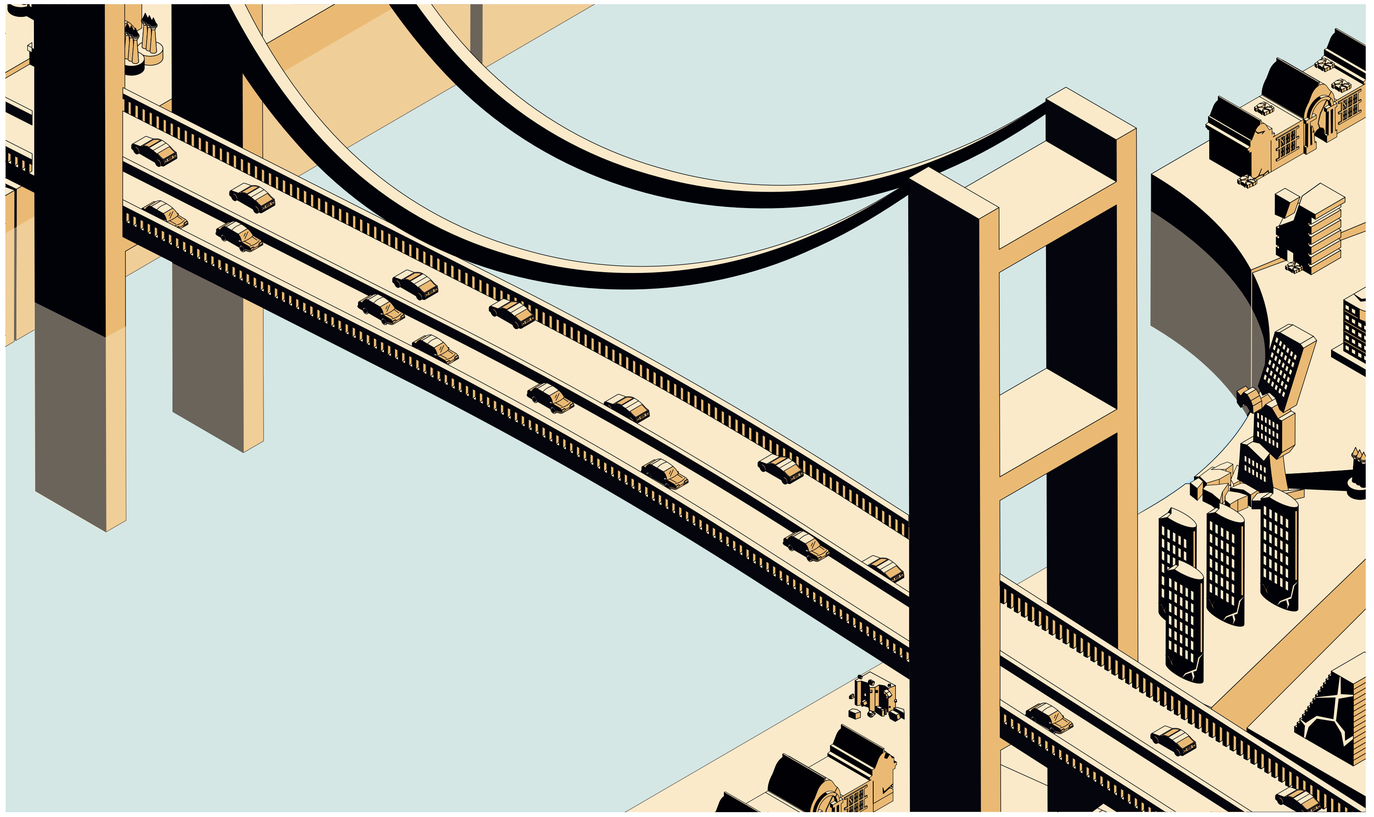
Geographical area



Istanbul, 41.022376, 28.998964

Timeline of impact chains

1999 - 2023	Present time	Future scenario
Past events	Urban dynamics and systemic risks	Potential major earthquake



Applied methodology

Istanbul's rapid population growth, socio-economic inequalities, and complex migration patterns create a highly dynamic risk environment, further amplified by its role as a national and global economic hub. Building on this context, the study adopts a mixed-method and transdisciplinary approach within the PARATUS framework.

Scenario-based stakeholder workshops were conducted in five districts, involving public institutions, academia, and local actors. Participants explored earthquake scenarios under varying conditions to assess evolving risks. The results were structured through impact chain analysis, enabling the identification of systemic vulnerabilities, interdependencies, and cascading effects across urban systems at multiple scales.

Results

The Istanbul case study examines urban dynamics to identify systemic vulnerabilities through scenario-based stakeholder workshops and impact chains. The results provide a multi-layered risk mapping, revealing district-specific profiles and critical infrastructure dependencies in transport, energy, and logistics systems. The findings show that risk is unevenly distributed and driven by strong interdependencies, leading to cascading effects across sectors. The study delivers actionable recommendations for improving system redundancy, coordination, and early response capacity, while also producing scenario-based planning tools that support decision-making, strengthen preparedness, and inform strategic investments in disaster risk reduction and emergency management.

Discover the results!

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Funded by the European Union

This project has received funding from European Union's Horizon 2021 Research and Innovation Programme under Grant Agreement N° 101073954.