

Sponge Cities: An integrated approach to climate adaptation

A flagship of the Climate Action Program at TU Delft

Climate change is increasingly challenging existing urban systems. In many cities, the current capacity of urban water management systems to remove rainwater is insufficient to deal with extreme rainfall events that result from climate change. Flooding events are becoming more intense and frequent. At the same time, climate change is associated with increasingly long dry periods, resulting in declining groundwater tables which threaten building foundations. The Sponge Cities approach responds to this challenge by providing the capacity to store water when available (keeping the sponge dry enough) and release water when needed (keeping the sponge wet enough). This project recognises the potential of Sponge Cities to respond to the multidimensional impacts of climate change and takes an integrated approach to Sponge Cities that goes beyond water management. We explore how Sponge Cities can create urban spaces that restore the health and well-being of people and ecosystems while addressing the complexity of existing urban challenges, such as deepening inequalities and segregation.

About Juliana Gonçalves

Dr. Juliana Goncalves is the Tenure Tracker working on the Sponge Cities flagship. She is an Assistant Professor in the Spatial Planning & Strategy section, Department of Urbanism, TU Delft. She is also the co-director of the Centre for Urban Science ([CUSP](#)) and a member of the [Delta Urbanism Interdisciplinary Research Program](#).

Juliana has an interdisciplinary background with expertise in socio-technical systems, urban data science, and policy analysis. Her research interests include spatial justice, climate change adaptation & urban resilience, energy transition, housing & building renovation, public participation & citizen empowerment, and related planning and policy implications. She looks at these questions from a socio-spatial intersectional perspective, often combining quantitative and qualitative research methods.



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