

## **Transformative Climate Change Adaptation: Creating Greater and Greener Cities**

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**Background/Objectives.** Climate change is forcing cities to work with increasing resilience for its citizens and businesses. We need to provide safety and capacity to handle the challenges that we are facing. Many cities are looking for new ways of doing this.

This session will look into how cities are developing new solutions that transform the city in the process, utilizing the climate challenge to also improve quality of life for the citizens, and creates new synergies between different urban functions.

**Approach/Activities.** The presentation will build on case studies from Copenhagen and New York City, and will focus on the work that the cities have been doing and the challenges that they have been facing to develop and implement green climate adaptation solutions.

**Results/Lessons Learned.** Since 2015, Copenhagen, Denmark, has been implementing its ambitious cloudburst management plan, covering the entire city with 350 projects at a cost of \$2 billion (USD). The plan goals include managing a 100-year storm while transforming the city by creating green surface solutions that increase tree cover and create aesthetic and recreational opportunities for its citizens. The implementation involves all aspects of urban design, from parks to traffic, with close collaboration with the city's water utility. This approach challenges conventional urban planning practices that rely on hard-scaped infrastructure, to address increasing hydraulic complexities and risks associated with. New York City and Copenhagen have been working together with a common goal to develop new, innovative, long-term resiliency solutions. For example, focusing on Southeast Queens, an area with chronic flooding, NYC developed a cloudburst model to determine the efficacy of using solutions similar to Copenhagen to reduce flooding under extreme future events. The approach considers a network of green and "green-blue" infrastructure projects. In partnership with the NYC Housing Authority, the first pilot project at the South Jamaica Houses is currently in design. NYC has now developed citywide models and is exploring the possibility of future cloudburst work. Tools for both Copenhagen and New York, in the development of respective Cloudburst Management plans and the NYC Cloudburst Resiliency Planning Study, include:

- Building the hydraulic basis – Integrated Flood Model and Climate Risk Model
- Preparing Catchment-wide Flood Management Plans with Blue-Green-Infrastructure
- Cost-Benefit Analysis and Climate Risk Monetization
- Implementation of state-of-the-art Blue-Green Infrastructure
- Sustainable Urban Developments