OFFICE OF THE MAYOR
MAYOR'S OFFICE FOR INTERNATIONAL AFFAIRS

GLOBAL VISION | URBAN ACTION

Urban Cities Confronting Climate Change Through Water Management:
New York City as an example

In 2013, 783 million people globally did not have access to clean water.[i] That's nearly 10 percent of the world's population. By 2030, the global demand for water is expected to outpace supply by 40 percent.[ii] As the population grows, agricultural demands, energy production, and industry expansion will increase water demand while extreme weather spurred by climate change will threaten drinking water supplies. Properly managing our scarce water resources is therefore more important than ever.

With more than half of humanity now living in urban centers, cities around the world are playing a leading role in building resiliency against climate change impacts.[iii] Ninety percent of cities are located in coastal regions and account for seventy-five percent of carbon emissions.[iv] As rapid urbanization continues, cities will be confronted with ensuring that water resources are effectively and equitably managed.

Mayor Bill de Blasio's Administration recognizes that effective water management means ensuring that all New Yorkers have access to clean drinking water while also protecting our residents from the adverse impacts of climate change, such as rising sea levels, damage to coastal habitats, and flooding from increased heavy rainfall.[v] As New York City learned from Hurricane Sandy in 2012, climate change can disrupt everyday life: destroying homes, displacing thousands, and negatively impacting local economies.

New York City: Local Initiatives on a Global Scale

New York City, a coastal city with a population of 8.5 million people and growing, is a leader on urban water management. The City is driving forward efforts to protect water quality, upgrade aging infrastructure, and address the impacts of climate change that often disproportionately affect vulnerable and low-income communities. Operating a complex water and wastewater system, which includes managing the nineteen reservoirs and three lakes that feed into the City's drinking water system, the New York City Department of Environmental Protection (DEP) delivers approximately one billion gallons of high-quality drinking water each day to more than

nine million residents, including 8.5 million in New York City.[vi] New York City's high quality drinking water consistently meets all federal and State standards.[vii]

As part of *OneNYC: The Plan for a Strong and Just City*, New York City's long-term development plan, the de Blasio Administration has adopted an integrated approach to water management. In addition to DEP's effort to maintain the city's water and manage stormwater and wastewater, and mitigate flooding, the Administration, through the Mayor's Office of Recovery and Resiliency (ORR), is focusing on protecting our coastal communities from extreme weather and sea-level rise and other climate change impacts. Below are some examples of New York City's approach to urban water management:

- **Drinking Water Management:** To ensure that nine million New Yorkers, in New York City and surrounding areas, have access to clean unfiltered water, DEP's watershed management practices include organizing and guiding land and natural resource use to prevent contaminants from reaching water resources through careful planning and communication with local stakeholders.[viii]

- **Wastewater Management**: New York City's fourteen wastewater treatment plants together treat an average of 1.3 billion gallons of wastewater daily through a network of over 7,500 miles of sewer pipes.[ix] DEP engages in innovative research and pilot programs and has a robust capital plan to upgrade the City's wastewater infrastructure to further improve water quality in New York's harbor.[x]

- **Stormwater Management**: Through multiagency partnerships, DEP is focused on investing in public green infrastructure to manage increasing volumes of stormwater. This includes designing and building sustainable green infrastructure to collect and manage stormwater runoff from streets, sidewalks, parking lots and rooftops to prevent stormwater runoff from entering the City's sewer systems.[xi]

- **Coastal Resiliency:** The City is making unprecedented investments in coastal protection as part of its multilayered $20 billion climate resiliency program underway across the five boroughs to prepare neighborhoods and infrastructure to withstand and emerge stronger from the impacts of climate change. This includes major new coastal resiliency investments that protect the most vulnerable coastal communities in New York City, including large-scale flood protection systems like the East Side Coastal Resiliency project, as well as the Raised Shorelines initiative, which will mitigate the impacts of sea level rise and erosion in low-lying neighborhoods.[xii]

Urban Leadership and Cities Driving Change

Urban leadership on climate change has sparked greater city-to-city cooperation to share best practice. This has allowed cities and countries to explore more innovative solutions to their climate challenges. For example, in 2015, the DEP and the Technical and Environmental Administration from the City of Copenhagen signed an agreement for knowledge sharing on a number of salient topics such as green infrastructure and disaster preparedness to developing solutions to mitigate heavy downpours/cloudbursts and compound flooding.[xiii]

Recognizing that climate change adaptation is critical for the future of their populations, other global cities are also embarking on plans to manage their water resources.

For example, the Indonesian archipelago is prone to flooding, leading to casualties and economic losses yearly.[xiv] The capital, Jakarta, is sinking at a rate of 1.6 to almost 8 inches annually and with the city's population expected to grow from 8.8 million to up to 25 million by 2025, the resulting land degradation will gradually contribute to sea level rise. [xv] Urban sanitation and sewerage systems present some of the greatest challenges for the municipality of Jakarta.[xvi] In 2012, the World Bank and the Government of Indonesia launched the 'Jakarta Urgent Flood Management Project' to strengthen existing flood management systems and rehabilitate infrastructure to operate at their full capacity.[xvii]

Cape Town, South Africa launched their 'Water Conservation and Demand Management Programme' in 2007.[xviii] This multipronged approach is aimed at minimizing water waste while promoting water efficiency. Initiatives include offering free plumbing repairs for low-income households, using recycled water to irrigate public parks, creating new jobs in plumbing, and establishing a water tariff.[xix] To date, over 4,000 households in Cape Town have received leak detection and repair services and approximately 250 kilometers of pipes have been replaced.[xx]

The Global Imperative: Cities at the Forefront

Every municipality and every nation has a stake in preserving the planet's water supply. The world came together for the 2015 September UN General Assembly to adopt the Sustainable Development Goals (SDGs) – seventeen goals intended to "end poverty, protect the planet, and ensure prosperity for all."[xxi] Goal 6, Goal 11, and Goal 13 respectively call upon countries to take urgent action to deliver clean water and sanitation, make cities inclusive, resilient and sustainable, and combat climate change and its impacts. In December 2015, a plan of action to protect the planet was agreed to: countries around the world committed to the Paris Agreement, an ambitious pledge to cut carbon emissions, address global warming by seeking to limit global temperature increases and improve resilience to the effects of climate change. In April 2016, more than 175 nations officially signed the historic Paris Agreement at the United Nations headquarters in New York, catalyzing climate action around the world.

Cities are major contributors to climate change with estimates suggesting that cities are responsible for more than seventy-five percent of global carbon emissions.[xxii] To safeguard public goods and services, such as water, cities must develop and implement innovative solutions to protect their residents. New York City is one leader in this global challenge.

Endnotes

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