

On February 22nd, we held a Candidate School session on Resiliency. NYLCV's Candidate Schools aim to educate candidates for public office in New York City and their campaigns on key environmental and public health issues in the city. A recording of the session can be watched [here](#). The first part of the session featured presentations focused on heat resiliency, while the second part brought more presentations from experts on coastal resiliency. Each part was followed by a Q&A session.

NYLCV President Julie Tighe kicked off the session. She said that the urban heat island effect makes New York City especially vulnerable to heat. The effects of this are disproportionately felt by lower income and minority communities. Daphne Lundi is an urban planner working in climate policy, and is the Deputy Director for Social Resiliency at the NYC Mayor's Office of Resiliency. There, she works on developing programs and policies that strengthen and prepare NYC communities against climate change impacts.

Lundi started her presentation by providing an overview of what heat vulnerability is. Cities are up to 22 degrees Fahrenheit hotter than their surroundings, and without air conditioning, indoor temperatures can be up to 20 degrees hotter than outdoor temperatures. As a result, there are 150 heat-related hospital admissions, 13 heat-stroke deaths, and 115 excess deaths from heat-related causes in the city every summer. She then discussed the initiatives the city has taken to combat the problem. A few years back, the City Health Department developed the Heat Vulnerability Index in conjunction with Columbia University. It uses a variety of environmental and social factors to determine the risk of NYC neighborhoods during and directly after extreme heat events.

She then stressed that inequality exacerbates climate risk, displaying maps that showed a correlation between historical redlining and high vulnerability to heat waves. Lundi then talked about the Cool Neighborhoods NYC Plan. There has been \$100 million allocated to planting street and park trees in high heat vulnerable neighborhoods, which will improve the temperature and air quality in these neighborhoods. Additionally, free roof coatings are available for affordable housing and community facilities as part of the Cool Roofs program. This program also provides workforce training for roof coaters. Another program is Be a Buddy NYC, which involved the city partnering with community based organizations (CBOs) in heat vulnerable neighborhoods to create "Buddy Systems." The CBOs receive training and are able to reach out to isolated residents.

The city had to modify their summer heat plan for COVID-19, but it includes an AC program for low-income seniors and socially-distanced cooling center locations. The GetCool NYC AC Program used \$55 million in allocated funds to purchase 74,000 air conditioners for low-income seniors. The city also successfully petitioned the Public Service Commission to increase the energy bill subsidy of 450,000 residents. Cool It! NYC was a program employing a wide variety of cooling strategies. However, Lundi said, there is still work to be done. This work includes integrating the understanding of hazards such as heat risk into the city's regulatory frameworks, expanding green infrastructure, and establishing funding streams for CBOs and retrofits of community facilities.

Sonal Jessel is the Director of Policy at WE ACT for Environmental Justice and is tasked with enforcing the organization's local, state, and national policy agenda. Previously, she researched energy, security, housing, and public health at Columbia University and conducted clinical trials at Weill Cornell Medicine. Jessel started by introducing WE ACT, which is a community based organization which has worked to build healthy communities since 1988 by ensuring that people of color and/or low-income people participate meaningfully in the creation of sound and fair environmental health and protection policies and practices. They currently focus on advocating for clean air, climate justice, healthy homes, sustainable and equitable land use, and good jobs.

She said that although conventional wisdom says that people especially at-risk for its impacts are older adults, children, people with chronic illness, pregnant people, and outdoor workers, the list of people at risk is much greater than that. The list includes people who live in older, poorly maintained apartment buildings, people who live in environmental justice neighborhoods, people who have been exposed to air pollution across their lifespan, and those who have to worry about a wide variety of other hardships. Jessel then presented two maps which showed a lot of overlap between neighborhoods which are vulnerable to heat and those with the highest COVID case rates. A year ago, WE ACT launched their HEat, Health, and Equity Initiative, which intends to collaborate with residents and partners to create an intersectoral, community-driven plan to create equitable policies and allocate resources to address extreme heat. The program found that the two main concerns were cooling and energy, which are being addressed through the Low-Income Home Energy Assistance Program and the city's Cooling Center Program.

Jessel then focused more in depth on the Cooling Center program. She said that a couple of years ago, WE ACT started studying cooling centers and found that they had low attendance. Last summer, the city launched a number of cooling centers, but many were not very appealing, being housed in locations such as school classrooms. Jessel said that WE ACT is working to fix the problem, and has found that the Cooling Center program can be improved through increased communication, improved signing, extending hours of operation, and training staff to recognize heat illness. To get more people to come to the centers, the program needs to be reimagined to have the centers come to the people. The need to be neighborhood specific, culturally relevant, and inviting.

The final speaker in the panel is Sam Bishop, the Director of Urban Forestry and Education at Trees New York. He oversees all tree plantings, green infrastructure projects, and adult educational environmental programming. He started by introducing Trees New York, a nonprofit founded in 1976 as a volunteer response to city cutbacks in tree-related community service. The organization's mission is to protect the city's urban forest through education and participation by communities. He then explained urban heat islands, which he says are urban areas where the temperatures are higher than the surrounding areas due to the presence of impervious surfaces. The temperature difference is most evident at night. Between 1900 and 1997, NYC's average UHI went from 2 degrees celsius to 2.5 degrees celsius, and have continued to increase. The nighttime UHI reached 8 degrees celsius on July 24, 2016. The intensity of UHI differs across the city due to multiple factors, including the height of buildings and the distance from the ocean.

Bishop showed maps which displayed a very strong correlation between the areas which experience the greatest UHI and those that lacked vegetation. Trees reduce the UHI effect through shading, preventing direct sunlight from hitting the sidewalk, street, and possible building walls. Larger trees provide greater benefits. Trees also cool the city through evapotranspiration, which involves heat being absorbed from the environment for evaporation and transpiration. To create a meaningful temperature reduction, 33%-40% of an area must be pervious surfaces or canopy cover. Tree cover in the city is about 21% as of 2012. Brooklyn had 16%, the Bronx had 23%, and Staten Island had 30% tree cover. However, this data was collected in 2010, which means they did not include many of the trees planted in the Million Trees program. Trees also have numerous other benefits, said Bishop, including reducing air pollution, removing atmospheric CO₂, intercepting storm water, providing a habitat and food source for wildlife, and having positive psychological effects for humans.

A Q&A session followed the panel. Jessel said that WE ACT advocated for the waiving of the Air Conditioning fees for public housing residents for the past year. She also mentioned that the single-issue AC units are inefficient. Jessel said that the fee is unnecessary. Lundi agreed that the fee should be waived, citing that we are likely to still be facing COVID this summer. Bishop said that the Parks Department is looking for more contractors to increase competition and drive prices down. Lundi responded to an inquiry about the frequency of extreme heat events by saying that by 2050, the number of days over 90 degrees will be tripled and our summers would feel more intense. Jessel said that we should have taken action previously to prevent the number of heat deaths from increasing, adding that heat illness and deaths are hard to track. She also mentioned that extreme heat events are often connected to other issues, including greenhouse gases and COVID-19. Lundi emphasized the fact that heat waves exacerbate other issues, including mental health. She also said that the FEMA BRIC program provides funding for climate adaptation, and people are advocating for the program to be used for heat resiliency projects in addition to the flood resiliency projects. NYLCV President Julie Tighe added that the Department of Environmental Conservation has an Urban Forestry program which includes funds available for the planting of trees. She also mentioned that the state passed a bond act in 2020, but it was unable to make it to the ballot due to budgetary constraints. However, she said that she is hoping the Bond Act makes it to the ballot in the upcoming years. Lundi said that blackouts and brownouts are common over summers when added pressure is being put on the grid, so solar panels would help alleviate that pressure by effectively taking buildings out of the grid. She added that in the past 2 years, a couple of local laws have been passed mandating either white, solar, or green roofs. Bishop said that solar panels are sometimes hard to install in cities because they get shaded by taller buildings or trees.

The second panel focused on coastal resiliency. Amy Chester has spent over twenty years advocating for the urban environment and is the Managing Director of Rebuild By Design. She began her presentation by talking about Rebuild By Design, a process which brings experts and local leadership together to tackle multidimensional problems. They accomplish this through holding large scale regional design competitions, using innovative processes to address cities' challenges, and through research and policy. She then talked about the destruction caused by

Hurricane Sandy, and how it taught an important lesson about the connection between physical and social resilience. The idea of social resilience began with research by Eric Klinenberg on the Chicago Heat Wave, where he found that a neighborhood in which people knew, trusted, and checked on each other had around 100 fewer deaths than a nearly identical one where people were not as connected. Chester then showed data emphasizing the increased frequency of flooding disasters due to climate change. She said that the likelihood of what we currently think of as a 100 year flood (a flood so great that there is a 1% chance of it happening every year) will rise to more likely than three of a kind in poker.

She also presented maps showing the increase in the area of the floodplain from 2015 to 2100 as well as the affected residents', income, racial, and ethnic breakdown. The number of low income residents living in or adjacent to the floodplain will increase to over 2.2 million by 2100. Additionally, the number of nonwhite residents living adjacent to the floodplain will increase from 56% now to 66% in 2100. Chester also mentioned that every dollar we invest in Disaster Planning saves \$6 later, so it is a good investment to make. She then presented an ultimatum: we can either let nature take the city back over or we can adapt to the changing environment. She used Venice as an example of the latter. Using the evolution of the handheld music player from the boombox to the iPhone as an example, Chester mentioned the need to promote innovative multi-purpose infrastructure. She then showed some examples of multi-purpose resilience infrastructure worldwide. It is important that we design with communities instead of for communities, Chester said, emphasizing community involvement in the design process.

She also talked about some projects in New York City, including The Big U in Manhattan, which will offer protection from storm surge flooding while improving connectivity and enhancing biodiversity, and Living Breakwaters in Staten Island, which will reduce beach erosion while providing recreational opportunities and spurring economic development. A third project is The Hunts Points Lifelines in The Bronx.

Karen Imas is the Senior Director of Programs at the Waterfront Alliance, where she oversees programming, advocacy, and outreach to build consensus around waterfront issues. She began by introducing Waterfront Alliance, whose mission is to inspire and effect resilient, revitalized, and accessible coastlines for all communities. Close to 800,000 New Yorkers live in the floodplain, which represents almost 20% of the city's land. She said our sea levels are expected to raise 8 to 30 inches by the 2050s and 15 to 75 inches by the end of the century, which will impact a far greater amount of people and land. She emphasized that these are not just numbers, as our culture and homes are going to be affected. The damage from flooding events affects all of us, through negatively impacting our sewage and subway system, as well as making essentials harder to get.

Since Sandy, the city has undertaken numerous projects, and completed many of them, but there is still much work to be done. There are still numerous gaps along the city's 520 miles of coastline, and some projects in Staten Island are delayed. Imas said that Hurricane Sandy highlighted the vulnerability of the city's buildings, and said that the city has a zoning plan for resiliency which would open the door for future retrofits. She stressed that there is no silver

bullet, but rather a combination of projects and policies across the local, state, and federal level. For this reason, coordination between city, state, and federal agencies is key. The city has introduced a number of resiliency plans to protect against future disasters, including the NYC Comprehensive Waterfront Plan, the Climate Design Guidelines, NYC Parks Designing for Flood Resiliency, OneNYC, and the Waterfront Management Advisory Board. She said that there is still a need for a well-funded, comprehensive resilience strategy for all 520 miles of city coastline.

The Waterfront Alliance is currently working on a Rise To Resilience project, which advocates for policy, governance, and financial changes to address climate risks at the local, state, and federal level, as well as Waterfront Edge Design Guidelines, which is similar to the LEED certification system. They have also released the Waterfront and Resilience Platform for the Next Mayor of NYC, which emphasizes the importance of the harbor, the need to adapt our waterfronts to a changing climate, and the need for public access to the waterfront.

The final panelist was Judah Asimov, a Senior Manager of Planning and Outreach at the Rockaway Initiative for Sustainability and Equity (RISE), where he designs and implements community planning, outreach, and engagement initiatives with community stakeholders. His presentation focused on coastal resilience from a local perspective. He began by introducing RISE, which aims to provide civic engagement and youth development programs which advance social equity and the physical well being of the Rockaway community. They have a community center which was redeveloped from a 1920s firehouse. The Rockaways is an 11 mile long peninsula located in Southeastern Queens, making it uniquely vulnerable to flooding. It is very segregated, with the Western part of the peninsula being mostly White and wealthy, as opposed to the Eastern part, which is predominantly Black and Hispanic. The beaches on the western part are better maintained and more easily accessible, with easily available concessions.

Asimov said that the Rockaways were devastated by Hurricane Sandy, and also have regular flooding issues. The Rockaways lack a proper storm sewage system, making them vulnerable to even minor rain events. Flooding hits low-income and predominantly-minority communities especially hard, making tasks that should be simple like commuting to work difficult. There is a sense of fatigue among residents from participating in survey after survey without having results delivered. To remedy this, Asimov suggested making sure the findings of the surveys are implemented as well as compensating residents for their time and input. Asimov also said that elected officials should listen to and communicate with residents, instead of having policies set in stone and seeing the community as an enemy they must manage. He also said that elected officials should support nature-based resiliency solutions such as dune planting. They can secure funding and simplify the bureaucratic process.

A Q&A session followed the second panel. Chester said that city elected officials can make decisions on budget and land-use to address resiliency. Imas agreed with Chester, and cited increasing the Parks budget as a way in which politicians can improve resiliency. She also mentioned innovative land use at the waterfront. Asimov added that candidates should use their

voices to push for resiliency initiatives and not forget about community engagement. Chester said that city agencies currently do not work together to plan for resiliency, but should start doing so. When asked about how prepared we are for a storm like Sandy, Chester said that we are more prepared on the evacuation front. Asimov said that although people are more aware of the importance of evacuation, the infrastructure is only marginally better. With regards to funding, Chester said that there is a state Bond Act which is currently in the works, which would allocate 35% of its money to environmental justice communities, many of which are located in NYC. Imas added that there are federal funding streams, and that the new administration has raised hopes for funding through COVID relief and infrastructure plans. She also mentioned that climate adaptation often gets overlooked in favor of climate mitigation, but that we should think about both. Chester said that resilience projects provide great job opportunities. Tighe mentioned buyouts of homes in vulnerable areas before a major flooding event as a possible strategy. Chester talked about the East Side Resiliency Project, saying that the community was very much in favor of it before the city stepped in and changed it at the last minute. As a result, the community has been torn apart, with some (including many NYCHA residents) in favor of the modified project and others opposed to it. Chester said that a combination of hard infrastructure and green infrastructure will be necessary for resiliency. She said that maintenance is important for green infrastructure. Asimov added that a lack of green infrastructure maintenance is an issue The Rockaways are dealing with. Imas said that there needs to be an emphasis on conservation, and that we should look at the economic and environmental benefits of green infrastructure instead of just focusing on its beauty. Chester added that green infrastructure also has social and health benefits