Vulnerable Populations

Actions

N17 Identify representative advocacy organizations for diverse and vulnerable populations.

N18 Facilitate cross-cultural dialogue, offer training for service providers, and share best practices.

N19 Ensure diverse modes of communication during environmental hazard emergencies to reach diverse and vulnerable populations.

N20 Implement educational campaign on environmental hazard preparedness to reach diverse and vulnerable populations.

N21 Coordinate closely with the Ohio public-private partnership to manage food and water access for vulnerable populations during environmental hazard emergencies.

A21 Require disclosure of known property problems for sale or rental of property.

A22 Require or incentivize that monthly utility costs for rental properties be reported to potential tenants.

Background

According to the ***World Health Organization (WHO)***, vulnerable populations are those subgroups who, compared to the general population, are more at risk of adverse health events and are less likely to resist or recover from threats to health.[1] A number of different groups can be considered vulnerable, including: children, pregnant women, elderly people, malnourished people, people who are ill, and people in poverty. The ***Intergovernmental Panel on Climate Change (IPCC)*** acknowledges vulnerability as the propensity or predisposition to be adversely affected.[2] The impacts from climate change are often dependent on other non-climatic factors and exposure differences. Therefore, assessing the susceptibility to harm and lack of capacity to cope and adapt is not always straightforward. Columbus should consider how climate change impacts its population and deliver climate adaptation information to its most vulnerable populations, since these groups will be disproportionately affected by climate change. An excellent overview of some of the considerations for this chapter, especially the necessary action items, is provided in a ***public health report*** by Wingate published in 2007.[3] Additional resources available from the ***Centers for Disease Control and Prevention (CDC)*** and ***Ohio Public Health Association (OPHA)*** should guide all decision making.[4, 5]

Over 30% of the population in Columbus is less than 18 years of age or more than 65 years of age, while in neighborhoods like Franklinton and the Near East, this number exceeds 35%.[6] In fact, Columbus has one of the youngest populations across a spectrum of U.S. cities and youngest of the Midwest's major cities (current median age of 35.9).[7] The estimated number of people in Columbus City Schools living below the poverty line is 27.2%, the highest of any school district in Franklin County. In areas such as Hilltop, Linden, and Weinland Park, the number rises to over 40% of the population. Columbus boasts the most diverse population in Franklin County, with people of color constituting 38.5% of the population. However, Columbus was identified as one of the most socioeconomically segregated cities in the country, as measured by the inequity between the most advantaged and most disadvantaged neighborhoods.[8] In order to adequately adapt to this changing climate, it is important for the City to understand how climate change increases risks that vulnerable populations face.

Post-analyses from previous environmental disasters reveal how specific populations can be disproportionately affected by natural hazards and how to allocate resources to achieve the greatest benefits. During the 1995 Chicago heat wave, over 700 heat-related deaths occurred throughout the city. The majority of fatalities concentrated in neighborhoods with disproportionately low-income residents who were socially disconnected and unable to sufficiently cool themselves.[9] Following the widespread, devastating floods in October of 2015, South Carolina collaborated with the University of South Carolina's Hazard and Vulnerability Research Institute to produce the ***South Carolina Action Plan for Disaster Recovery***. They utilized their Social Vulnerability Index to empirically assess social vulnerability in all counties that experienced damage. Those counties with high social vulnerability have a decreased ability to prepare for, respond to, and recover from environmental disasters (e.g., floods).[10] Although these counties did not include the most populated areas, the report demonstrates that providing resources to higher socially-vulnerable areas result in the greatest recovery benefit. In ***Louisiana during Hurricane***

Katrina, 49% of all fatalities occurred among people aged 75 or older, despite that population representing only 5.4% of the city's total population.[11]

These and other types of events illustrate how the risks associated with extreme events may be magnified for vulnerable populations and manifest in a variety of ways. For example, if a major flood requires evacuation, limited access to transportation in certain neighborhoods can result in the inability of people to leave an area. This is often the case for elderly and impoverished communities. At emergency shelters or cooling centers, problems may arise due to language differences, cultural barriers, or the inclusion/exclusion of pets. During heat waves, people with pre-existing medical conditions (e.g., asthma, high blood pressure) or on certain medications are more susceptible to heat-related illnesses and death. Likewise, individuals living in poverty are less likely to have housing with adequate cooling. Therefore, having both a pre-existing medical condition and living in poverty compounds an individual's ability to overcome a heatwave. ***Research*** indicates that there is an overall correlation between exposure to environmental pollution and the degree to which communities are segregated.[12] In Columbus, there is evidence of a ***concentration of facilities*** that deal with toxic substances on the south side of the city.[13] All of these factors should be accounted for as Columbus prepares to respond to continued warming and greater likelihood of extreme precipitation events.

Franklin County Emergency Management and Homeland Security (FCEM & HS) has identified a number of organizational liaisons that represent and engage particular communities during disasters. Collaboration and communication with vulnerable populations, often achieved by working in concert with trusted community partners who know and understand the population's needs, will lead to the most effective solutions. Since these populations are quite diverse in Columbus, careful consideration should be given to all of the populations, realizing that not all populations will need the same support. Involving leaders and representatives from diverse populations in emergency planning makes it more likely that effective steps can be taken to increase resilience to climate impacts and environmental hazards. Rather than merely responding to natural hazards in the moment, investments in planning, nurturing collaborative relationships, training, and increased coordination will likely improve outcomes when emergencies occur.

To unpack the topics highlighted above, this chapter contains five necessary (N) actions that Columbus should take to engage populations throughout the city that are more susceptible to climate impacts. By including community leaders and representatives from these populations, the City can ensure that necessary information and resources are delivered to these groups, both before and during environmental disasters. Finally, two aspirational (A) actions focus on providing pertinent information on housing properties to buyers or renters so that they may understand all potential costs associated with increased environmental risks and utilities due to climate change.

N17 **Identify representative advocacy organizations for diverse and vulnerable populations.**

Vulnerability varies based on the nature of an emergency within a community.[14] During the creation of this report, the wide diversity of vulnerable populations in Columbus and their particular needs became apparent. The Task Force recognized a lack of communication and collaboration with key leaders and representatives within these populations who could provide an overview of their concerns and needs. Establishing a network of such leaders and representatives would benefit more than the City's work on climate resilience.

The City should consider creating a directory of leaders or representatives from vulnerable populations to consult in advance of an emergency. This would ensure a stronger level of preparedness and guide the City on proper messaging and outreach. Technical experts, emergency personnel, and communications specialists are more likely to craft a successful message in consultation with these individuals. Likewise, the City should be prepared to rapidly translate written and oral communications to key languages (e.g., Spanish, Somali, etc.) and make them available to emergency personnel. For events that are highly likely to occur (e.g., extreme heat events, floods), a collection of pre-written and pre-recorded messages should be created. When particular neighborhoods are impacted by an event, door-to-door canvassing might be necessary before, during, or following that event. Over time, both the populations and their needs will change, requiring vigilance in maintaining open lines of communication with leaders/groups that are already part of the conversation while inviting participation of those who represent newly emerging populations. To support communication and ongoing engagement with emerging populations, a regular forum for exchanging ideas among these representative advocacy organizations and the City could be held.

Public health professionals are likely to have the appropriate training and experience to identify and work with diverse and vulnerable populations and should be engaged throughout the process. Existing coalitions and groups facilitated by public health can be leveraged to connect with community members and agencies providing services to vulnerable communities; however, the need for departments across the city to leverage community connections is necessary to broaden outreach efforts in Columbus neighborhoods. Detailed guidance for working with vulnerable populations is provided in a ***2007 public health report by Wingate***, the ***BRACE Framework from the CDC***, and a ***2018 publication of the OPHA***.[3, 4, 5]

N18 **Facilitate cross-cultural dialogue, offer training for service providers, and share best practices.**

The City should facilitate cross-cultural dialogue related to climate change adaptation; these conversations have strengthened relationships between neighborhoods and public health commissions, police departments, schools, and food pantries in other communities. Cross-cultural dialogue allows participants to gain a greater understanding and empathy for the circumstances of others within the community, and it can lead to positive and productive interactions in the future. When planning for climate change impacts, the dialogue should focus on those individuals who are most affected by climate change but have the least capacity to respond. These conversations need to include both the agencies and organizations that deliver services to the vulnerable populations and representatives from the communities that receive those services. There are a number of ***examples of guiding principles*** employed by

agencies and organizations facilitating cross-cultural dialogue, including those in public health.[15]

Requirements for training will be informed by the needs of vulnerable populations within Columbus and expertise from the public health community. As was mentioned earlier in this chapter, essential guidance can be found in the 2007 public health report by Wingate, the BRACE Framework from the Centers for Disease Control and Prevention, and a 2018 publication of the Ohio Public Health Association.[3, 4, 5] While accessible training materials developed for other communities can be employed, methods that are specific to Columbus should be subsequently refined and expanded. Additional training might need to be created in collaboration with the representative advocacy organizations discussed in section N17 and include integrated evaluation. Collaborative development ensures that all necessary information is included while being culturally sensitive. Likewise, it should be acknowledged that not all audiences are best reached by same delivery method. Online learning platforms offer a number of novel strategies that could supplement or replace in-person training.

Realizing that there is a wide network of collaborators with the city on any training initiative, education campaign, or emergency response, developed materials should be shared with service providers and community organizations. Needs that are identified during cross-cultural dialogues can inform city policies and subsequent training opportunities. Therefore, the dialogues discussed above can serve to improve communication and build relationships as well as enhance operations and training.

N19 Ensure diverse modes of communication during environmental hazard emergencies to reach diverse and vulnerable populations.

Not all vulnerable populations have access to either computers or smartphones, and many receive their information from a diverse array of sources. Older populations still rely on radio and television for information. Some populations might rely on a smartphone rather than a computer but have a limited data plan. For those with language barriers, friends, family members, or members of a faith community might serve as their conduit for information. Although the messaging will be different during emergencies and education campaigns, there will most likely be overlapping pathways of communication.

Both Columbus and Franklin County should utilize various language-appropriate communication to meet people where they are, using different emergency alert systems for various circumstances and different populations. Two examples include Wireless Emergency Alerts that are used for Amber Alerts, as well as systems that rely on individuals pre-registering e-mail addresses or mobile phone numbers, such as ALERT Franklin County. Following the ***October 2017 wildfires in California***, post-mortem analyses of emergency evacuations revealed that problems arose in deploying evacuation alerts.[16] While systems performed well at the county level, they often failed at the neighborhood-level. Emergency managers have to carefully determine whether to deploy alerts systems. When seconds matter to individuals that are trying to safely flee threatened neighborhoods, widespread alerts may result in individuals from otherwise safe neighborhoods evacuating unnecessarily. Large, simultaneous evacuations can clog escape routes, preventing evacuees in the most threatened neighborhoods from leaving. As mentioned in A19 under Emergency Preparedness, an emergency alert

system should integrate with whatever emergency mobile application is selected by the City of Columbus.

In addition to communications during an emergency, consideration should be given to developing ways for vulnerable populations to contact friends and family members following an event. The City and County should work with the ***Ohio Public-Private Partnership (OP3)*** to ensure that barriers are reduced for permanent repairs to and, when necessary, temporary deployment of telecommunication assets—including cellular networks, landlines, and data providers.[17] Likewise, novel technologies could be deployed, such as Facebook's Safety Check, to allow simplified communication between those experiencing the disaster and their friends and family members.[18] These supports can offer help to affected individuals, hopefully returning their lives to a greater sense of normalcy, while also reducing strain on 911 emergency operations.

N20 **Implement educational campaign on environmental hazard preparedness to reach diverse and vulnerable populations.**

Educational campaigns on environmental hazard emergencies should focus on ways to prevent harm to individuals and property during future events, particularly flooding, extreme heat, and air quality emergencies. The City should ensure that the educational campaigns suggested in other chapters of this adaptation plan include a specific focus on the impacts to vulnerable populations. There are a number of innate challenges concerning educational campaigns with vulnerable populations. These include the need to identify which vulnerable populations are most at risk during particular environmental hazards, determining the best educational methods that ensure increased awareness of how climate change impacts their lives, and convincing community organizations and individuals who might already be facing a number of other pressing needs that the educational campaign is worth their involvement. To guarantee long-term retention, the educational campaign should be provided routinely.

N21 **Coordinate closely with the Ohio public-private partnership to manage food and water access for vulnerable populations during environmental hazard emergencies.**

OP3 can nimbly respond to emergency needs for food and water access. ***During the summer of 2014***, the water supply of Toledo was contaminated due to an algal bloom near the water intake located in Lake Erie.[21] A toxin released by the bacteria rendered the water system unusable for approximately 400,000 individuals for three days. In addition to the aid from neighboring communities with separate water treatment facilities and the Ohio National Guard creating distribution points, OP3, operating under Ohio Homeland Security, was instrumental in working with large corporations to redirect bottled water to Northwest Ohio.[17] The partnership allowed better communication and coordination between government agencies and private companies that were able to provide tangible assets during the emergency. Having sufficient bottled water in stores where individuals were accustomed to shopping was more convenient for a majority of the population, and it also allowed emergency personnel and public distribution points to service those most in need. A similar arrangement could be utilized for food access during an environmental hazard emergency such as a flood.

Rather than create its own public-private partnership, Columbus should ensure that emergency planning and response personnel are part of OP3. Likewise, in working with FCEM &

Social Vulnerability Index

The CDC has created *the Social Vulnerability Index* to help local officials identify the ability of specific communities to prepare for hazards or recover from disasters.[19] While taking actions to reduce social vulnerability can decrease both human suffering and economic loss during a disaster, it might also be necessary to respond to communities that have high social vulnerability. An online tool makes this data available by census tract for emergency planning and response. The Social Vulnerability Index tool is composed of four themes: 1) socioeconomic status, 2) household composition, 3) race/ethnicity/language, and 4) housing/transportation. To inform both communication and education campaigns, GIS tools that were discussed in the Emergency Preparedness chapter of this report under action N15 should include this information on vulnerable populations within Columbus neighborhoods. Another accessible source of data on vulnerable populations, provided by census tract, is available from *Headwaters Economics Populations at Risk* tool.[20]

HS, engaging OP3 should be seen as an effective way to mount a more robust response to an emergency by bridging the strengths of the public and private sectors. Participating with OP3 does not preclude the city from working with its typical community partners and non-profits.

A21 Require disclosure of known property problems for sale or rental of property.

Many of the protections provided in federal and state law that govern real estate transactions and mortgages provide protections for buyers that are not afforded to renters. Considering that approximately one-third of the country's population does not own their own home, this gap affects a significant number of individuals and families.[22] Columbus should consider passing legislation to require landlords to provide more information to tenants about the properties they are renting so that they can better assess rental risks in light of climate change. Under Ohio landlord-tenant law, landlords have no obligation to disclose known issues, and there are no restrictions on local governments to require the disclosure of roof leaks, electrical issues, malfunctioning appliances, pests, and known hazards, such as the location of the property within a floodplain. Columbus needs to take action to increase the information made available to vulnerable populations about their residences so they are better equipped to deal with the negative consequences climate change may have on their living situation.

After the *2017 flooding in Houston associated with Hurricane Harvey*, it was revealed that several apartment buildings had flooded multiple times in the past and were located in areas known to be at high risk for flooding according to federal guidelines.[23] Many of the affected tenants were unaware of this. Of the environmental hazards listed in this plan, flooding has the

greatest potential to render buildings unusable. Flooding forces renters to evacuate, relocate, and/or replace personal property, all of which cost time and money. Properties located within floodplains and those that have flooded in the past are of greatest concern. Flooding does not just include inundation by a river or stream but also localized flooding due to insufficient storm water drainage or sewer backups that flood basements. Previous flood events may have resulted in undisclosed structural impairment in addition to health and safety issues such as damaged electrical systems and mold.

There are two recommended disclosures that would benefit tenants. These include information concerning whether the property of interest is in the 100-year and 500-year floodplains as determined by the National Oceanic and Atmospheric Administration (NOAA) and whether the property has flooded in the past. In addition to allowing tenants to determine whether they accept rental properties with known flood risks, this information would allow them to consider the level of insurance coverage that might be needed to protect their assets. Both of these disclosures should be included on a standard form developed by Columbus that would also provide links to web resources with maps of floodplains in Columbus, damage that can be caused by flooding of a property (including health risks due to mold), and considerations for insurance coverage.

Any requirements to disclose problems with a property need to be backed by sufficient penalties for landlords failing to follow through. Likewise, if renters do not have an affordable way to pursue recourse with a landlord who has not disclosed problems for which there is evidence of prior knowledge, or renters do not have other affordable options than to accept substandard properties with known problems, the intent of this requirement is rendered unfulfilled.

A22 **Require or incentivize that monthly utility costs for rental properties be reported to potential tenants.**

A ***2013 study completed by the University of North Carolina at Chapel Hill Center for Community Capital*** suggests that energy expenses can undercut the ability of homeowners to make mortgage payments, and therefore, should be factored into mortgage risk.[24] It is estimated that homeowners spend over $2,500 annually on energy bills, significant costs that sometimes exceed insurance and property taxes.[25] The situation is no different for renters, with low-income renters facing a larger financial burden from energy costs than high-income renters. While high-income renters (those earning $75,000 or more) pay approximately 1% of their income on utilities, low-income renters (those earning less than $15,000) pay approximately 15%. This higher percentage is due to both lower incomes and less-efficient properties.[26, 27] Besides purely economic considerations, difficulties in making utility payments and fear of losing service result in stress for affected households. Under the currently opaque energy market—with utility expenses for properties not publicly available and a vast majority of properties not having a completed energy audit—making such information available could result in new behavioral norms for renters with both economic and environmental benefits.

One of the challenges in promoting energy efficiency in rental properties is that landlords determine the physical infrastructure of the property, but tenants generally pay for utility costs. Economic incentives that would typically motivate improvements to a property do not function properly in this situation.[25] Additional information provided to tenants might allow them to adjust their rental choices accordingly. For instance, a renter would be more likely to prefer a more energy-efficient property with

Emerging Energy Efficiency Tools

Information on energy efficiency could be gathered by prior utility expenses, energy audits of properties, or algorithms based on publicly available property data. Two recently available online tools in this arena are ***RealEstate.com with UtilityScore*** and ***Redfin with Tendril***.[31, 32] While neither tool is perfect, they are examples of how available data can be used to provide more information to homebuyers and renters. In locations where utilities or landlords are not required or not allowed to share information on energy use, these tools are an attempt to provide renters with some useful information on properties that they are considering. Landlords may always provide potential tenants with additional information if they feel that the online tools do not adequately capture the energy use of their properties.

lower utility bills over a less energy-efficient property with higher utility bills if all other factors are equal. Such a change in behavior would create a greater demand for efficient properties. Landlords, to remain relevant in the market, would need to upgrade their properties, thus realigning economic incentives to favor efficiency. Chicago has an ordinance in effect that requires landlords to disclose electric or gas heating costs for all properties, regardless of whether a tenant or landlord is paying directly for such services.[28] This ordinance also requires the disclosure of the portion of the year a building was occupied. Additionally, Columbus could require landlords to disclose particular features of the property, such as whether the windows are double-paned and the extent of insulation. This market-based incentive only works if renters generally understand the information, it factors into their decision-making, and there are sufficient rental properties from which they may select.[29] Landlords who wish to make their properties more energy-efficient, thus making them more attractive to potential renters, may take advantage of programs described under action A3.

A growing number of rental properties have utilities provided or billed directly by third parties rather than a regulated distributor. This impacts both the rates paid by the tenant (as additional fees are often incurred) and the options available to select renewable sources (tenants would not be able to select a different supplier). Tenants, especially those from out-of-state or that are first time renters, might not know their utility providers or rates when signing a lease.

A standard disclosure form, similar to the one mentioned under A21 for flood risk, could include the utility provider (for electricity, natural gas, and water), a link to the website with current rates and average usage per square foot, and a link to the Public Utilities Commission of Ohio (PUCO) ***Energy Choice Ohio website*** with a notice of whether it applies to the property.[30] Additional information on the specific energy efficiency of a property relative to other similar properties, derived from the prior year's actual usage or an indirect evaluation based on some of the tools described in this chapter's inset, could be included on this form. The City would need to determine what information should be

included and whether regulations or incentives would motivate its inclusion. This information would allow renters to better understand the full cost of their rental decisions and seek additional information when necessary. Properties that are more efficient than average might have market incentive to advertise this information without regulations or incentives from the city, thus resulting in renters asking to see similar information of all prospective landlords.

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