BELIZE CITY & CLIMATE CHANGE: PLANNING BRIEFS

NATURAL HAZARDS

Belize City lies entirely at or below sea level, making it vulnerable to impacts from hurricanes and storms.

In addition to flooding related to its coastal location, Belize City is vulnerable to flooding due to its proximity to Belize River and Haulover creek. The mouth of the Belize River is located north of Belize City, which causes additional flood risk during major rainfall events. Overflow and storm surge can spill into Haulover Creek, resulting in flooding in central Belize City and low-lying areas. Storm surge from the Caribbean Sea also increases flood risk and can make evacuation difficult as waters can build up along key evacuation routes. Populations that live in the lowest-lying areas, informal settlements in the mangrove wetlands, and those that do not have access to a personal vehicle will be particularly at risk during these severe flooding events.

Most of Belize City is in the 100-year floodplain meaning there is a 1% or greater chance of flooding every year.

Belize City has the largest built area in Belize, but 80% of the city, including buildings, housing and utilities, is in the 100-year floodplain. On average, 48,000 people in Belize City (63% of the city's population) are affected by common flood events every year. Vulnerable populations, such as low-income communities, indigenous groups, older adults, women, and children, are generally less able to prepare for, respond to, or recover from impacts of weather hazards such as floods. These populations will experience greater impacts on their livelihoods as flood events increase in severity and number.

Vulnerable populations are more likely to be cut off from news sources, making them less prepared for extreme weather events.

Low-income, and minority populations may live in areas that have less reliable or no access to internet connections and other news sources making it more difficult for these populations to receive updates about weather events in real time. If the home does not have reliable electricity, access to TV or radio could be limited. Additionally, non-English speaking populations might not be able to utilize public education materials or announcements if they not translated into other languages.

Powerful winds present heightened risk of damage and injury, especially for people in substandard housing.

The effects of flying debris, or downed trees and power lines from severe winds from hurricanes and other coastal storms can cause massive damage and injury. More than 37% of the buildings in Belize City (which house over 45% of the population) are considered substandard. Extreme winds also cause damage to roofs and utilities even for higher-quality buildings. For lower-quality building stock, severe wind may cause collapse. Low-income communities, which are often home to vulnerable groups such as migrants and single-woman households, disproportionately occupy substandard structures and are at greater risk to suffer severe economic loss and injury from strong winds and storms.

Unequal care responsibilities contribute to the disparate impact women face when responding to and recovering from extreme weather events.

Although both men and women are affected by disasters, women carry an extra burden because of their responsibilities for family care, both physically and mentally, in planning and preparation for disasters. Climate hazards may put excess stress on women as they work to ensure that their homes return to normalcy after a disaster.

Coordinating family evacuation, caring for children while displaced from the home, and rebuilding post-disaster all require a great deal of care work. This can put an unequal burden on women, and may keep them from participating in the formal economy, which further hinders their resilience to severe weather events. Moreover, previous reports after hurricanes in Belize indicate that the loss of family income following storm events often led to greater tensions at home. As a result, many women experienced greater abuse.

According to the last census, 27.6% of households were headed by females. Female-headed households face additional challenges as these women are also the primary income-earners. They are also more likely to be responsible for physical preparation and recovery from severe weather events, further increasing their burden.

NATURAL DISASTERS IN BELIZE CITY

PLANNING GUIDANCE

ABOUT BELIZE ASSOCIATION OF PLANNERS

Belize Association of Planners (BAP) is a proactive professional planning organization committed to assuring social justice and promoting sustainability in the natural and built environment. BAP works to address relevant planning and development issues in Belize by working in partnership with the public and private sector and civil society organizations, and the people of Belize through research, education, advocacy and action. For more information, visit belizeplanners.org.

These planning briefs were made in partnership with students from New York University's Wagner School of Public Service.

Ensure emergency shelter accommodations that are safe for vulnerable groups.

Emergency shelters must be prepared to provide extra accommodations for vulnerable populations, such as the disabled and mothers who are nursing. It is important for shelters to provide private sections for women and children, or at least child-friendly environments, where children and mothers feel safe during times of crisis. Simple measures such as ensuring safe lighting, and providing toys, coloring books, or games for children can be very effective. More accommodating shelters will decrease stress and make it more likely people will evacuate ahead of storms.

Update and enforce building standards.

Design standards for buildings located in areas susceptible to storm surge, erosion, and flooding should be updated and enforced to improve resilience to climate change. These standards should ensure that buildings are able to accommodate flooding on the ground floor and that utilities are elevated. Design standards could be created for lower-quality housing to establish a baseline for safety. Appropriate information and resources about building codes should be shared, especially targeted toward women and minorities who are the majority of persons living in substandard and low-quality housing.

Prioritize community education and capacity-building around risk and resilience.

Residents and businesses in high-risk areas, including residents in substandard housing, should be educated about severe weather risks, including flooding and wind impacts on their homes and personal safety. Education should include disseminating information about evacuation routes, emergency shelters, and how to fortify homes in preparation for severe weather events.

Education campaigns should include capacity-building to train residents on community-driven mitigation efforts. This includes keeping drains, culverts, and public areas free of debris, overgrown vegetation, and other materials that can clog drainage infrastructure. This will improve run-off of floodwaters and mitigate risks of flooding during heavy rain, both seasonally and during weather events. Education materials should be developed in languages other than English, particularly Spanish, Kriol, and Maya, and incorporate sign language where possible. If appropriate, materials could also use alternative methods that do not require literacy, such as pictures or icons. All materials should be distributed through multiple channels, especially in areas where internet access or electricity is limited.

Training citizens on how to protect their families and their neighbors is also critical. The National Emergency Management Organization currently partners with the Belize Red Cross on a program for community-led disaster preparedness. Such programs are common throughout the Caribbean, and include information on how to provide basic emergency first aid, how to identify and assist the most vulnerable members of the community (such as seniors), how to inform other community members about their disaster risk and safety protocols, and general best practices for environmental sustainability. Such programs should be continued and strengthened, especially in areas of higher risk.

Incorporate disaster management into master planning.

Disaster management and response strategies should account for vulnerable populations. These strategies should be incorporated into the City's Master Plan (possibly as a part of the Flood Mitigation and Drainage Plan). There are inequities in response and recovery, such as safety and accessibility of evacuation routes and transportation, and insufficient public assistance for recovery that should be addressed in more comprehensive disaster management planning.

Develop and implement an inclusive warning system.

An improved storm and hurricane warning or public notification system should be created that is targeted to vulnerable populations. This should include those who live in sub-standard and lower-quality structures, those with limited education levels or limited English proficiency, and those with diverse abilities. This may include adding captions in multiple languages to television broadcasts, accompanying any remarks by public officials with sign language interpreters, and clearly marking evacuation routes with signage that does not require English proficiency or literacy.