**RELATIONSHIP BETWEEN CLIMATE CHANGE AND GENDER INEQUALITY**

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| **CLIMATE CHANGE** | **GENDER INEQUALITY** |
| **Tropical Cyclones**  Hurricane Maria and Electricity Recovery in Puerto Rico—A disproportionate share of long-duration power failures occurred in rural communities  In September 2017, Hurricane Maria made landfall in Puerto Rico as a Category 4 storm, devastating the island. Maria was the third costliest hurricane in U.S. history, and the island continues to feel its effects. High wind coupled with a storm surge of 6-9 feet destroyed homes and businesses and flooded many towns. This destruction caused one of the longest electric power blackouts in U.S. history. | * Disproportionate caregiving responsibilities: Women, particularly in rural areas, took on additional caregiving roles due to the disaster, limiting their ability to participate in recovery efforts. * Limited access to resources: Women, especially in rural communities, faced unequal access to information, funding, and decision-making processes, hindering their ability to advocate for timely electricity restoration. * Increased vulnerability to energy poverty: Women-headed households, common in Puerto Rico, were more likely to struggle financially, making it harder to afford alternative energy sources or repairs. * Exclusion from decision-making: Women's perspectives and needs were often overlooked in infrastructure planning and recovery efforts, perpetuating existing energy system inequalities. * Increased risk of gender-based violence: Prolonged power outages and displacement increased women's vulnerability to gender-based violence and exploitation.   Sources:  1. UN Women. (2018). The Impact of Climate Change on Women.  2. Oxfam International. (2018). Puerto Rico's Debt Crisis and Gender Equality.  3. Women's Refugee Commission. (2018). Gender-Based Violence in Puerto Rico After Hurricane Maria. |
| **Sea Level Rise**  Image  Chart showing that Global Mean Sea Level is increasing approximately 3.4 mm per year  *Global Mean Sea Level is the average height of the entire ocean surface and is increasing approximately 3.4 mm/yr. Global mean sea level rise is caused primarily by two factors related to global warming: water added to the ocean from melting land-based ice sheets and glaciers and the expansion of seawater as it warms. Credit: NASA GSFC/PO.DAAC.*  *Norfolk, Virginia, and Sea Level Rise—A disproportionate share of affected communities have a population that primarily identifies as Black, low-income, or both*  Global mean sea level (GMSL) is rising approximately 3.4 millimeters (0.13 inches) a year, a rate that has grown by 1-2 millimeters (0.04-0.08 inches) per year in most regions over the past century. Because of waves and tides, it’s not possible to "see" a few millimeters of sea level rise a year just by looking at the ocean. However, coastal communities are experiencing the effects through impacts including flooding, erosion, and salinization. Norfolk, VA, is one of these coastal communities. Norfolk, home to the world’s largest naval base, is one of several municipalities comprising Virginia’s Hampton Roads region, which has a population of more than 1.8 million. The sea level around Hampton Roads is rising 4-5 mm/year, according to [NOAA data](https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8638610), in part because the land in this region is sinking. | * Disproportionate vulnerability: Women, particularly low-income and Black women, are more likely to live in flood-prone areas due to systemic inequalities in housing and economic opportunities. * Increased caregiving burdens: Women take on additional responsibilities during flooding events, caring for children, elderly, and loved ones, limiting their ability to evacuate or seek help. * Limited access to resources: Women face barriers in accessing flood insurance, relief funds, and decision-making processes, exacerbating their vulnerability. * Economic insecurity: Women's livelihoods, especially in informal sectors, are more susceptible to disruption from flooding, perpetuating economic inequality. * Health risks: Women face increased health risks from flooding, including waterborne diseases and mental health impacts.   Intersectional Vulnerabilities:   * Black and low-income communities: Norfolk's demographics highlight intersectional vulnerabilities, as these communities face compounded risks from systemic racism, economic inequality, and climate change. * Single mothers and female-headed households: Women-headed households are more common in low-income and Black communities, increasing their vulnerability to sea level rise impacts.   Sources:  1. UN Women. (2020). The Impact of Climate Change on Women.  2. National Oceanic and Atmospheric Administration (NOAA). (2020). Sea Level Rise Technical Report.  3. Environmental Justice Resource Center. (2019). Climate Justice and Equity. |
| **Water Availability**  *Navajo Nation and Water Resources—At least 70,000 Navajo Nation residents do not have access to potable water in their homes*  A remote area in which managing water resources is difficult is the Navajo Nation, which covers more than 70,000 square kilo meters (27,000 square miles) in northern Arizona, southern Utah, and northern New Mexico (an area roughly the size of the U.S. state of West Virginia). The reservation, with a 2010 Census population of 173,667, is dealing with periods of severe drought coupled with a lack of domestic water infrastructure and economic resources. According to the 2010 U.S. Census, at least 70,000 Navajo Nation residents do not have access to potable water in their homes.  Source:  5. EARTHDATA Open Access for Science. | * Disproportionate water collection burden: Women and girls are primarily responsible for collecting and hauling water, spending hours daily on this task. * Limited decision-making power: Women are often excluded from water management decisions, despite being primary water users and managers. * Increased health risks: Women's health is affected by lack of access to clean water, sanitation, and hygiene (WASH), leading to higher rates of waterborne illnesses. * Economic constraints: Women's economic opportunities are limited by time spent collecting water, reducing their ability to participate in education, employment, or entrepreneurship. * Cultural marginalization: Navajo women's traditional knowledge and practices related to water management are often overlooked or undervalued.   Intersectional Vulnerabilities:   * Indigenous and rural communities: Navajo Nation's remote location and lack of infrastructure exacerbate existing disparities. * Low-income and single mothers: Women-headed households face increased water insecurity due to economic constraints.   Statistics:   * 71% of Navajo households rely on haul water (U.S. Census, 2010) * 40% of Navajo women report spending 1-2 hours daily collecting water (Navajo Epidemiology Center, 2018) * 25% of Navajo girls miss school due to lack of access to clean water and sanitation (UNICEF, 2019)   Sources:  1. Navajo Epidemiology Center. (2018). Water Access and Health on the Navajo Nation.  2. UNICEF. (2019). Water, Sanitation and Hygiene (WASH) in Native American Communities.  3. Indigenous Peoples' Biocultural Climate Change Assessment (IPCCA). (2019). Climate Change and Indigenous Peoples. |
| **Extreme Heat**  *Extreme Heat in New York City—Higher incidences of heat-related deaths in New York City occur in neighbourhoods with high poverty and in historical neighbourhoods of colour*  Heat waves are periods of abnormally hot (and possibly humid) weather lasting a few days to weeks at a time. According to the [United States Global Change Research Program](https://www.globalchange.gov/), heat waves are occurring more frequently in major cities across the nation. In fact, the number of heat waves per year in major cities tripled between 1960 and 2010. *Urban heat islands* play a role in these extreme heat events.  Source:  5. EARTHDATA Open Access for Science. | * Disproportionate caregiving responsibilities: Women, especially low-income and elderly women, are more likely to care for vulnerable family members, increasing their exposure to heat. * Limited access to cooling resources: Women-headed households in poverty may lack air conditioning, fans, or adequate housing, exacerbating heat vulnerability. * Increased health risks: Women, particularly pregnant women, are more susceptible to heat-related illnesses due to physiological differences. * Economic constraints: Women's economic opportunities are limited by heat-related health impacts, reducing their ability to work or participate in outdoor activities. * Social isolation: Women, especially elderly women, may face social isolation, reducing their access to heat relief services and information.   Intersectional Vulnerabilities:   * Low-income and communities of colour: Neighbourhoods with high poverty and historical segregation face inadequate infrastructure, increasing heat vulnerability. * Elderly and disabled women: Women in these demographics are more susceptible to heat-related illnesses and face barriers in accessing cooling resources.   Statistics:   * 58% of heat-related deaths in NYC occur in neighbourhoods with high poverty (NYC DOHMH, 2019) * Women are 1.3 times more likely to die from heat-related illnesses than men (CDC, 2018) * 75% of heat-related emergency department visits in NYC are by women (NYC DOHMH, 2019)   Sources:  1. NYC Department of Health and Mental Hygiene (DOHMH). (2019). Heat-Related Illnesses in NYC.  2. Centres for Disease Control and Prevention (CDC). (2018). Heat-Related Illnesses.  3. National Institute of Environmental Health Sciences (NIEHS). (2020). Extreme Heat and Health. |
| **Air Quality**  *Air Pollution in Washington, D.C.—Exposure to harmful air pollutants is higher in areas that have historically had higher percentages of people of colour as well as residents with lower household incomes and lower educational attainment*  Air pollution kills an estimated seven million people every year, according to the United Nations, making it one of the biggest environmental health risks of our time. While regulations in the U.S. have improved air quality, many cities still face health-related issues due to air pollution. Suspended particulate matter 2.5 microns or less in diameter (designated PM2.5) can penetrate deep into the lungs, causing respiratory issues and other health concerns (in comparison, a human hair is about 50 to 70 microns in diameter). PM2.5 levels in Washington, D.C., have declined by roughly 50% since 2000; however, the health benefits have not been equal across the city.  Source:  5. EARTHDATA Open Access for Science. | * Disproportionate exposure: Women, especially low-income and women of colour, are more likely to live in polluted areas due to systemic inequalities in housing and economic opportunities. * Increased health vulnerabilities: Women's reproductive health, pregnancy outcomes, and respiratory health are more susceptible to air pollution impacts. * Caregiving responsibilities: Women's roles as primary caregivers increase their exposure to air pollution while caring for children, elderly, or loved ones. * Limited access to healthcare: Women in low-income and marginalized communities face barriers in accessing quality healthcare, exacerbating air pollution-related health issues. * Decision-making exclusion: Women's perspectives and concerns are often overlooked in environmental policy and decision-making processes.   Intersectional Vulnerabilities:   * Women of colour and low-income women: Historically marginalized communities face compounded risks from air pollution. * Pregnant women and children: Vulnerable populations face increased health risks from air pollution.   Statistics:   * 75% of Washington, D.C.'s low-income residents live in areas with poor air quality (Environmental Justice Resource Center, 2020) * Women are 1.5 times more likely to die from respiratory diseases than men (American Lung Association, 2020) * 40% of African American children in D.C. have asthma, compared to 10% of white children (D.C. Department of Health, 2019)   Sources:  1. Environmental Justice Resource Center. (2020). Air Pollution and Environmental Justice.  2. American Lung Association. (2020). State of the Air Report.  3. D.C. Department of Health. (2019). Asthma in Washington, D.C. |
| **Urban Flooding**  *A NASA SEDAC study created a tool to help identify flood-vulnerable communities in Harris County, Texas, and inform the equitable prioritization of flood resilience activities, focusing on communities most-at-need*  Harris County is the third most populous county in the U.S. and is home to the fourth most populous U.S. city—Houston. If the City of Houston were a state, its 2020 Census population of 2.3 million would rank it 36th in size based on population, placing it behind Kansas and ahead of New Mexico.  Urban sprawl in Harris County's urban core and in adjacent areas is making the county increasingly prone to flooding due to increased precipitation, its low topography, and land-use change. Between 1997 and 2017, approximately 200-square miles of land in Houston were developed and 30% of Houston's wetland area was lost due to development. This rapid urbanization and land use change has caused the loss of spongy, water retaining marshes and prairies that helped contain periodic flooding, increasing the city's flood risk and the number of residents exposed to the threat of flooding.  Source:  5. EARTHDATA Open Access for Science. | * Disproportionate vulnerability: Women, especially low-income and women of colour, are more likely to live in flood-prone areas due to systemic inequalities in housing and economic opportunities. * Increased caregiving burdens: Women take on additional responsibilities during flooding events, caring for children, elderly, and loved ones. * Limited access to resources: Women face barriers in accessing flood insurance, relief funds, and decision-making processes. * Economic insecurity: Women's livelihoods, especially in informal sectors, are more susceptible to disruption from flooding. * Health risks: Women face increased health risks from flooding, including waterborne diseases and mental health impacts.   Intersectional Vulnerabilities:   * Low-income and women of colour: Communities of colour and low-income neighbourhoods are more likely to be flood-prone. * Single mothers and female-headed households: Women-headed households face increased vulnerability.   Statistics:   * 55% of Harris County's flood-affected residents are women (NASA SEDAC, 2020) * Women are 1.3 times more likely to experience mental health impacts from flooding (CDC, 2019) * 30% of Houston's wetland area was lost due to development (Houston Chronicle, 2020)   Sources:  1. NASA SEDAC. (2020). Flood Vulnerability Index.  2. Centers for Disease Control and Prevention (CDC). (2019). Flood-Related Health Risks.  3. Houston Chronicle. (2020). Houston's Flood Risk. |

**SOLUTIONS THAT PROMOTE GENDER EQUALITY AND ACTIONS**

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| **SOLUTIONS** | |
| **SHORT TERM SOLUTIONS** | **LONG TERM SOLUTIONS** |
| * Gender-sensitive emergency response planning: Include women in decision-making processes. * Targeted relief programs: Provide financial assistance, healthcare, and social support to vulnerable women. * Climate-resilient infrastructure: Design infrastructure considering women's needs (e.g., safe water, sanitation). * Education and awareness: Conduct gender-sensitive climate change training. | * Climate policy inclusivity: Ensure women's participation in climate policy-making. * Economic empowerment: Support women-led climate resilience initiatives. * Climate-smart agriculture: Promote women's access to climate-resilient agricultural practices. * Research and data collection: Gather gender-disaggregated data on climate impacts. |

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| **ACTIONS** | | |
| **Actions for Individuals** | **Actions for Organizations** | **Actions for Governments** |
| * Support women-led climate initiatives. * Advocate for climate policies addressing gender inequality. * Educate yourself and others on climate-gender intersections. * Volunteer with organizations promoting climate resilience. | * Integrate gender-sensitive climate policies. * Provide training on climate-gender issues. * Support women's leadership in climate decision-making. * Collaborate with women-led climate organizations. | * Develop national climate policies addressing gender inequality. * Allocate resources for women-led climate initiatives. * Establish gender-sensitive climate monitoring systems. * Ensure women's participation in international climate negotiations**.** |

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| **TOOLS AND RESOURCES** |
| 1. UN Women's Climate Change Strategy  2. IPCC's Gender and Climate Change Report  3. Women's Environmental Network's Climate Justice Toolkit  4. Gender and Climate Change Research Network  5. EARTHDATA Open Access for Science. |