How urban heat islands make the impacts of excessive heat worse

William Brangham Jul 27, 2023 6:35 PM EDT

Living in certain parts of a city can make the impacts of extreme heat worse. That's because of a phenomenon called the urban heat island effect. A recent report by the research group Climate Central showed that more than 40 million Americans live in these hot spots. William Brangham discussed what this means for those residents with Michael Mendez of the University of California, Irvine.

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- **William Brangham:**

  In addition to the dangers faced by where someone works, sometimes, where you live can also make the impacts of extreme heat worse, like living in certain parts of a city.

  That's because of a phenomenon called the urban heat island effect. A recent report by the research group Climate Central showed that more than 40 million Americans live in these hot spots.

  So, what does this mean for those residents? And is there any way that they can get relief?

  For that we turn to Michael Mendez. He's assistant professor of environmental planning and policy at the University of California, Irvine,

  Professor Mendez, very good to have you on the "NewsHour."

Can you help us understand, what is the urban heat island effect?

Michael Mendez, University of California, Irvine: Thank you for having me here today. It's a pleasure to be here to talk to you about this important issue that is affecting many people across the nation of — 40 percent of residents in the United States are under a heat advisory.

And many of them are living in urban areas that don't have adequate infrastructure, let alone environmental amenities like trees and other forms of greenery that provide shade. So, an urban heat island effect is where you have a lot of urbanized and suburban areas that are paved over with asphalt, concrete, other — other types of building materials that absorb the heat.

And with little vegetation and trees for shade, and other types of cooling material, these areas and communities could be anywhere between five and even 20 degrees hotter than other neighborhoods that have more green space for shade.

- **William Brangham:**

  That is such a shocking difference in temperature, simply that can be driven by how a certain area is built and what the structures are made of?

- **Michael Mendez:**

  Most definitely.

  I think many of us that are millennials, Gen Z or even older remember being on the hot turf, asphalt, in schools and see the steam actually permeate out of these hard heat-trapping surfaces. So imagine not just a schoolyard, which is just, unfortunately, an urban heat island, but an

entire neighborhood, and how that can really change how you experience an extreme heat event, and let alone if you're living in an older home that's 100 years old.

You may experience it even more inside of a home that isn't climate-resilient, can have even hotter temperatures than the ambient air outside.

- **William Brangham:**

  I cited this study that says that millions of Americans are living in — under these types of conditions that you're describing.

  But I also understand that it is not equally spread across demographics, that certain people are more vulnerable than others. Can you explain?

- **Michael Mendez:**

  Yes, this phenomenon of the heat waves, extreme climate events have disparate impact. It does not affect everyone equally.

  And this is because a heat wave is a natural phenomenon — phenomenon in some part, but there's been political choices have been — have been made over the decades, if not centuries, that have withheld vital resources and infrastructure from communities, primarily low income-communities of color, African American and Latino communities.

  So it's no surprise, when a heat wave or other type of extreme weather event strikes these communities, they're the least prepared and often suffered the most impacts, because they don't have — they have crumbling infrastructure, and they don't have the amenities that will protect them and make them more resilient from our changing and

extreme climate.

- **William Brangham:**

  You have been describing or hinting at a few of what seem like the possible solutions here.

  Walk me through those things. If I were a city planner, what are the things that I can do to try to reduce the urban heat island effect?

- **Michael Mendez:**

  First is, a lot of these campaigns, we hear about the million-dollar campaigns that a lot of urban mayors are trying to institute in their cities, planting trees.

  Climate-resilient trees that are resilient to drought as well can help cool down are cities, cool roofs, rooftops, making sure that we're able to reflect some of the sun's rays and ensure that our houses that are cooler, having more climate weatherization in our homes, and, of course, having more cool pavements, moving away from that black asphalt and concrete that is absorbing and retaining the heat.

  And other types of green spaces, watershed management practices are multibenefit. They can clean our water, recharge our groundwater, but also provide green space and recreational spaces. So, we need to look for multibenefit policies and projects that attack multiple problems that climate change is causing our urban areas and throughout our nation.

- **William Brangham:**

  I mean, some of these things you're talking about seem quite quick. I mean, you can paint a roof a different color quite quickly. Trees, we

know, take longer to grow.

Are there communities that you would point to in the country that are doing some of these things, that are taking this initiative head on and trying to do these things?

- **Michael Mendez:**

Well, in my in my hometown of Los Angeles, it's often named — thought of as very suburban, very asphalt, concrete-driven area.

But they're really leading the way in terms of creating an Office of Climate Emergency and Resilience, where they have hired a full-time person and staff to understand these issues and try to target resources to the most immediate communities, those that are lacking these trees and green spaces.

So, places like Los Angeles, Portland, of course, Seattle have been at the forefront of enacting climate action, but also having a strong equity and justice lens.

- **William Brangham:**

All right, Professor Michael Mendez, U.C. Irvine, thank you so much for being here.

- **Michael Mendez:**

Thank you for having me.