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Houston EMA/HSDA Ryan White Part A Service Definition <b>Emergency Financial Assistance – Other</b> (Revised April 2020)	
HRSA Service Category Title:	<b>Emergency Financial Assistance</b>
Local Service Category Title:	<b>Emergency Financial Assistance - Other</b>
Service Category Code (RWGA use only):	
Amount Available (RWGA use only):	
Budget Type (RWGA use only):	<b>Hybrid</b>
Budget Requirements or Restrictions:	<p>Direct cash payments to clients are not permitted. It is expected that all other sources of funding in the community for emergency financial assistance will be effectively used and that any allocation of RWHAP funds for these purposes will be as the payer of last resort, and for limited amounts, uses, and periods of time. Continuous provision of an allowable service to a client must not be funded through EFA.</p> <p>The agency must set priorities, delineate and monitor what part of the overall allocation for emergency assistance is obligated for each subcategory. Careful monitoring of expenditures within a subcategory of "emergency assistance" is necessary to assure that planned amounts for specific services are being implemented, and to determine when reallocations may be necessary.</p> <p>At least <b>75%</b> of the total amount of the budget must be solely allocated to the actual cost of disbursements.</p> <p>Maximum allowable unit cost for provision of food vouchers or and/or utility assistance to an eligible client = \$xx.00/unit</p>
HRSA Service Category Definition ( <b>do not change or alter</b> ):	<b>Emergency Financial Assistance</b> - Provides limited one-time or short-term payments to assist the RWHAP client with an emergent need for paying for essential utilities, housing, food (including groceries, and food vouchers), transportation, and medication. Emergency financial assistance can occur as a direct payment to an agency or through a voucher program.
Local Service Category Definition:	<b>Emergency Financial Assistance</b> is provided with limited frequency and for a limited period of time, with specified frequency and duration of assistance. Emergent need must be documented each time funds are used. Emergency essential living needs include food, telephone, and utilities (i.e. electricity, water, gas and all required fees) for eligible PLWH.
Target Population (age, gender, geographic, race, ethnicity, etc.):	PLWH living within the Houston Eligible Metropolitan Area (EMA).

Services to be Provided:	<p><b>Emergency Financial Assistance</b> provides funding through:</p> <ul style="list-style-type: none"> <li>• Short-term payments to agencies</li> <li>• Establishment of voucher programs</li> </ul> <p>Service to be provided include:</p> <ul style="list-style-type: none"> <li>• Food Vouchers</li> <li>• Utilities (gas, water, basic telephone service and electricity)</li> </ul> <p>The agency must adhere to the following guidelines in providing these services:</p> <ul style="list-style-type: none"> <li>• Assistance must be in the form of vouchers made payable to vendors, merchants, etc. No payments may be made directly to individual clients or family members.</li> <li>• Limitations on the provision of emergency assistance to eligible individuals/households should be delineated and consistently applied to all clients.</li> <li>• Allowable support services with an \$800/year/client cap.</li> </ul>
Service Unit Definition(s): <b>(HIV Services use only)</b>	A unit of service is defined as provision of food vouchers or and/or utility assistance to an eligible client.
Financial Eligibility:	Refer to the RWPC's approved <i>Financial Eligibility for Houston EMA Services</i> .
Client Eligibility:	PLWHA residing in the Houston EMA (prior approval required for non-EMA clients).
Agency Requirements:	Agency must be dually awarded as HOWPA sub-recipient work closely with other service providers to minimize duplication of services and ensure that assistance is given only when no reasonable alternatives are available. It is expected that all other sources of funding in the community for emergency assistance will be effectively used and that any allocation of EFA funding for these purposes will be the payer of last resort, and for limited amounts, limited use, and limited periods of time. Additionally, agency must document ability to refer clients for food, transportation, and other needs from other service providers when client need is justified.
Staff Requirements:	None.
Special Requirements:	Agency must: Comply with the Houston EMA/HSDA Standards of Care and Emergency Financial Assistance service category program policies.

***FY 2023 RWPC “How to Best Meet the Need” Decision Process***

<b>Step in Process: Council</b>		Date: <b>06/09/2022</b>
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
<b>Step in Process: Steering Committee</b>		Date: <b>06/02/2022</b>
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
<b>Step in Process: Quality Improvement Committee</b>		Date: <b>05/03/2022</b>
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
<b>Step in Process: HTBMTN Workgroup #3</b>		Date: <b>04/20/2022</b>
Recommendations:	Financial Eligibility:	
1.		
2.		
3.		

# Advisers Rebuke FEMA for Racial Disparities in Disaster Aid

Thomas Frank, E&E News on January 7, 2021

A federal advisory panel has issued a startling report that says government disaster aid exacerbates inequality by enriching affluent areas and shortchanging low-income and minority communities.

Programs by the Federal Emergency Management Agency “provide an additional boost to wealthy homeowners and others with less need, while lower-income individuals and others sink further into poverty after disasters,” FEMA’s National Advisory Council wrote in a recent report.

“Through the entire disaster cycle,” the report adds, “communities that have been underserved stay underserved and thereby suffer needlessly and unjustly.”

The 35-member council, established by Congress after Hurricane Katrina in 2005, advises FEMA on emergency management and writes an annual report highlighting problems and possible solutions.

The council’s latest [report](#) is a stunning embrace of research by FEMA critics who have warned that disasters disproportionately hurt low-income and minority areas. It elevates their findings by incorporating them into recommendations.

“This empowers people who have been at the table but marginalized in raising those equity concerns to say, ‘Look, this is in a federal document; it’s being taken seriously by FEMA,’” Rice University sociologist James Elliott said.

The report cites Elliott’s 2018 study showing that white people who live in counties that sustained major disaster damage saw their personal wealth increase, while Black, Hispanic and Asian people in heavily damaged counties lost wealth.

Chauncia Willis, CEO of the Institute for Diversity and Inclusion in Emergency Management, said the 52-page report should push FEMA to take equity seriously.

“FEMA has not focused on equity enough, and that’s why disasters are exacerbated for people of color, for poor people and marginalized communities,” said Willis, a former emergency management coordinator for Tampa, Fla. “FEMA has not prioritized equity, and as a result, the people suffer for it.”

The report will fall to the incoming Biden administration, which could use the document “to draw attention to this issue and to prioritize this issue on its policy agenda,” said Dave Kaufman, a former senior FEMA official who consulted with the council on the report.

Equity entails providing “the greatest support to those with greatest need to achieve a certain minimum outcome,” the report says.

“It’s an incredibly important issue,” said Kaufman, who is director of safety and security at the Center for Naval Analyses. “The bigger the disaster, the more federal aid flows, and the more wealth disparities by race grow.”

The council report marks a sharp departure from [previous](#) versions that have largely avoided controversy and recommended easy-to-endorse steps such as educating the public about disaster preparedness and expanding the number of households with flood insurance.

## ‘Paradigm shift’

The new report, released late last year, systematically criticizes FEMA disaster programs for being designed in a way that benefits affluent people and communities. The authors highlight FEMA programs that reimburse states for disaster recovery costs such as infrastructure repairs and cleanup, and that give emergency cash to disaster-stricken households and individuals.

The reimbursement program “most benefits communities that can afford to pay the required match and can navigate the complexities of the contracting agencies,” the report said. Federal law generally requires states to pay 25% of disaster recovery costs in order to receive FEMA reimbursement for the remaining 75%.

The emergency cash program “is more accessible to those with time, income and access,” the report says, noting that individuals must register with FEMA and demonstrate eligibility before receiving help.

In addition, FEMA’s National Flood Insurance Program “inadvertently assists the wealthier segment of the population by serving only those who can afford to buy flood insurance.”

“Overall, FEMA assistance is implemented such that people, municipalities, tribes and states with relatively more resources can access the most program assistance,” the report concludes. “Those who do not have access to existing resources, information or technology are less able to access necessary programs for preparation, mitigation, response and recovery than they should be entitled to.”

The report comes as FEMA and other government agencies face scrutiny as the coronavirus pandemic disproportionately affects minorities in the United States and reveals vast disparities in public health and job safety.

FEMA is under particular focus after an investigation found last month that agency personnel faced widespread racial and sexual harassment and discrimination. At a congressional hearing in July, Virginia’s emergency management coordinator, Curtis Brown, said disaster agencies are dominated by white men and must diversify “to reverse the existing failure to enact equitable practices before, during and after disasters” ([Climatewire](#), July 29, 2020).

Willis of the diversity institute said she has met with the Biden transition team to suggest minority candidates who could serve as FEMA administrator. The potential candidates are “open to making FEMA a more diverse, equitable and inclusive organization,” she said.

FEMA has had only one minority administrator in its 41-year history and no female administrators.

The advisory council report urges FEMA to create an “equity standard” to evaluate its programs, and to analyze which practices governing grant distribution should be revised to increase equity.

The proposals entail “a paradigm shift in the way FEMA prioritizes its program funds and efforts,” the report

says. “By shifting their focus to the most historically underserved populations, FEMA can drive significant improvement.”

University of Pittsburgh sociologist Junia Howell, who co-authored the 2018 study with Rice’s Elliott about disasters and wealth, said the recommendations “are an important step” but “only a blueprint for a process to begin to address these issues.”

“Depending on how the recommendations are implemented and the actions they then inspire, we will see to what extent we are able to address the existing inequality,” Howell said in an email.

The advisory council’s 35 members are appointed by the FEMA administrator and include emergency managers, health practitioners, disaster consultants, budget experts and municipal officials. The chairman, W. Nim Kidd, is head of the Texas Division of Emergency Management.

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# FEMA Disaster Aid Often Widens Racial Disparities

*Christopher Flavelle*

## Why Does Disaster Aid Often Favor White People?

The federal government often gives less help to Black disaster survivors than their white neighbors. That's a challenge for President Biden, who has vowed to fight both inequality and climate change.

Published June 7, 2021 Updated Oct. 27, 2021



Credit...Brandon Thibodeaux for The New York Times

Roy Vaussine and Charlotte Biagas live in modest, single-story homes about a dozen miles apart in southwest Louisiana. When Hurricane Laura tore through their community last August, the damage was nearly identical. A tree crashed through the roof of each house. Neither had insurance. Each sought help from the federal government.

At that point, their stories diverge. The Federal Emergency Management Agency initially gave Mr. Vaussine \$17,000 in assistance; Ms. Biagas and her husband, Norman, got \$7,000.

Their situations are different in another respect: Mr. Vaussine is white. Charlotte and Norman Biagas are Black.

A growing body of research shows that [FEMA](#), the government agency responsible for helping Americans recover from disasters, often helps white [disaster victims](#) more than people of color, even when the amount of damage is the same. Not only do individual white Americans often receive more aid from FEMA; so do the communities in which they live, according to several recent studies based on federal data.



Leaders at FEMA are wrestling with the complicated question of why these disparities exist — and what to do about them. The problem seems to stem from complex systemic factors, like a real estate market that often places higher values on properties in communities with many white residents, or the difficulty of navigating the federal bureaucracy, which tends to favor people and communities that have more resources from the beginning.

The impact from this disparity is long-lasting. White people in counties with significant disaster damage that received FEMA help saw their personal wealth jump years later while Black residents lost wealth, research published in 2018 shows.

The imbalance comes as climate change fuels more frequent and more destructive storms, wildfires and other disasters, and marginalized communities tend to be both the most exposed to damage and least able to recover financially.

FEMA declined to comment on individual cases, citing privacy concerns, and said it had created an internal working group to examine the issue. In April, it [asked the public](#) for examples of policies “that perpetuate systemic barriers to opportunities and benefits for people of color and/or other underserved groups,” as well as ideas for improvement.

“We are advancing this work,” said Justin Knighten, FEMA’s director of external affairs, adding that the agency is working on a comprehensive public response. “That is a top priority for the administrator.”

The racial disparities in FEMA’s disaster assistance present a test for President Biden, who has made fighting both racial inequality and climate change central themes of his administration.

“All FEMA programs and policies need to be equitable, due to the disproportionate impact of disasters on marginalized communities,” said Chauncia Willis, co-founder and chief executive of the Institute for Diversity and Inclusion in Emergency Management, a nonprofit group in Georgia. “It needs to become a core goal.”

The pressure on FEMA to address racial disparities is growing. The Government Accountability Office is looking at FEMA’s actions “to ensure more equitable outcomes” in its disaster programs. The agency’s own advisory council said FEMA [isn’t meeting](#) its legal requirement to provide aid without discrimination on racial or other grounds. During her Senate confirmation, the first question faced by Deanne Criswell, President Biden’s choice to run FEMA, was how she would ensure Black, brown and Latino survivors get equal access to disaster aid.

“It is unacceptable that minority communities not only feel the impact of natural disasters far more severely than others, but they also often have more difficulty obtaining assistance from the federal government,” Senator Gary Peters, Democrat of Michigan and chairman of the Homeland Security and Governmental Affairs Committee, said in a statement



Credit...William Widmer for The New York Times

The research so far suggests that the scale of the problem is immense.

After a disaster, FEMA's Individual Assistance program offers grants to survivors who do not have insurance, providing [as much as \\$36,000](#) for home repairs. Before giving money, FEMA or its contractors inspect a property for damage, and then determine whether that damage was caused by the disaster and how much to provide in assistance.

Ethan J. Raker, who recently earned a Ph.D. at Harvard and will be taking up an assistant professor position at the University of British Columbia this summer, used a public record request to obtain 5.4 million applications for FEMA assistance from homeowners affected by hurricanes between 2005 and 2016. He found racial disparities at every stage of the process.

Climate Forward There's an ongoing crisis — and tons of news. Our newsletter keeps you up to date.

The higher the percentage of Black residents living in a specific ZIP code, the less likely applicants there were to get an inspection, without which FEMA typically will not fund repairs, he found.

Even when disaster victims in African-American neighborhoods were able to get a damage inspection, 11 percent had their requests denied with no reason given. By comparison, just 4 percent of homeowners in white neighborhoods were denied with no reason given.

And when homeowners in Black areas succeeded at getting their applications approved, FEMA awarded them less money on average than applicants in white areas — between 5 percent and 10 percent less, Dr. Raker found.

A 2019 [paper](#) by Stephen Billings and Emily Gallagher, at the University of Colorado, found a similar pattern after Hurricane Harvey. Homeowners who lived on blocks with a greater share of nonwhite residents, as well as lower incomes and credit scores, had a lower chance of getting approved for FEMA grants.

"It should be the other way around," Dr. Gallagher said, noting that more vulnerable populations have an even greater need for federal disaster assistance.

When it comes to money that FEMA reimburses counties and municipalities for rebuilding roads, bridges, hospitals and other facilities after a disaster, racial disparities exist as well.

Counties with a significant share of Black, Hispanic or Native American residents often receive less money from FEMA than mostly white counties, even when suffering the same amount of damage, according to a [study](#) published in 2019 by Simone J. Domingue, then a researcher at the University of Colorado, Boulder, who analyzed FEMA grants to 1,621 counties from 2012 through 2015.

Racial disparities also exist in FEMA's program that purchases and then demolishes damaged homes. Those buyouts are meant to help individual homeowners leave a dangerous location, and reduce future federal costs by avoiding paying for more damage in that spot.

But buyouts can leave people worse off, especially lower-income families who may not have enough money to purchase a home in a safer location. Buyouts can also hurt a community by hollowing it out, making it less attractive while also shrinking the tax base.

In a [paper](#) published last year, James R. Elliott, a sociology professor at Rice University, looked at FEMA buyouts around the country from 1990 to 2015. Dr. Elliott and his co-authors found that FEMA "seems to be disproportionately demolishing homes in communities of color," he said.



Credit...Octavio Jones for The New York Times



Credit...Emily Kask for The New York Times

The various FEMA programs appear to be making racial inequality worse, sometimes in surprising ways.

[Research published](#) in 2018 found that, for white Americans, living in a county hit by a large disaster was a financial boon. Those white residents didn't just see their wealth grow — it grew five times as much, on average, as the wealth of white residents in counties without major disasters, according to the research by Dr. Elliott and Junia Howell, a sociology professor at the University of Pittsburgh. Wealth in these cases largely referred to changes in home values.

For Black residents of those same disaster-struck counties, by contrast, wealth levels shrank after a disaster, according to the research.

Changes in home values are probably part of the reason, according to the authors: As white neighborhoods receive new federal investment, demand for houses in those neighborhoods goes up, while Black neighborhoods often get less federal spending and so struggle to recover. And Black residents may be more likely to suffer a financial setback, such as losing a home or a job.

"The more aid an area receives from the Federal Emergency Management Agency, the more this inequality grows," Dr. Howell and Dr. Elliott wrote. "FEMA aid — as currently administered — appears to exacerbate the problem."

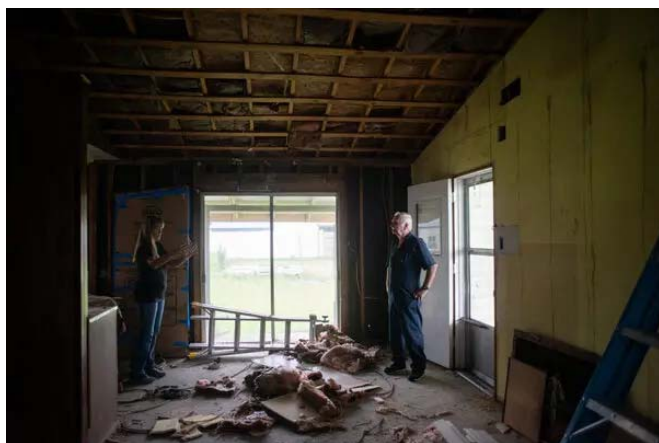
In interviews, researchers said they had no reason to believe FEMA was intentionally discriminating. Rather, the differences may flow from the realities of real estate, municipal finance and the challenges of navigating the federal bureaucracy.

Counties with more nonwhite residents may have less tax revenue, which means fewer staff or resources to navigate the complex process of seeking FEMA grants, or less money to pay the local share that FEMA requires. And houses in Black neighborhoods may have lower property values, which makes them more attractive for government buyout programs with limited funds.

More money to rebuild communities after a disaster may increase property values, pricing out lower-income renters. And individual disaster assistance tends to benefit homeowners more than renters, and people of color are more likely to rent.

The process of seeking FEMA's help is also demanding, requiring documentation, internet access and time — making it burdensome for those who may be temporarily displaced, whose livelihood may be disrupted, and who may be also struggling to care for children or other family members.





Credit...Brandon Thibodeaux for The New York Times

The challenges of navigating that system can be seen in the cases of Mr. Vaussine and Mr. and Mrs. Biagas.

Hurricane Laura sent a pine tree through the roof of the single-story house that Charlotte Biagas grew up in, near a bayou on the north side of Lake Charles. That led to extensive water damage; six weeks later, Hurricane Delta dumped more rain into the home.

Her husband, a 55-year-old Navy veteran, had been working for his brother-in-law's tiling and flooring business. But the pandemic caused business to dry up, and, with it, his income.

Then the hurricane hit, throwing their lives further into disarray: The couple had to move in with their son, three hours away near Houston. FEMA gave them a trailer to stay in, which remains parked in their driveway. The couple are only now in the process of moving back into their house.

Mr. Biagas described the application process as horrible. "My wife had to submit applications over and over again," he said. "It was a very trying time."

A tree also broke through the roof of Mr. Vaussine's house, knocking out the back wall and destroying his bedroom and bathroom. But in a sense, Mr. Vaussine, an 87-year-old retired oil rig worker, was lucky: His niece, Sharon Moses, was able to handle his application process. Ms. Moses said her uncle has been able to stay with his girlfriend while his house is being repaired. He has yet to move back in.

Keith Turi, FEMA's assistant administrator for disaster recovery, said in a statement: "Comparing what externally appears to be similar types and amounts of damage is an inaccurate way of evaluating whether a given household received the appropriate level of assistance."

"If a person believes damages were not accurately captured and included, they can work with our FEMA team to appeal," Mr. Turi said.

But the appeals process also leaves people of color at a disadvantage, experts said.

The Biagas and Mr. Vaussine appealed to FEMA for more money with the help of SBP, a nonprofit group that helps people cope with the complexity of FEMA programs.

Of the 33 families in and around Lake Charles that SBP has helped appeal their awards, 11 won more money, and the remaining cases are still in process, according to Reese May, the group's chief strategy and innovation officer. None have been denied.

That success rate suggests that FEMA's awards are too low, putting the onus on disaster survivors to fight for more, Mr. May said. Appealing is "an arduous process, and one that's often confusing to the applicant." Only 3 percent of FEMA applicants file an appeal, the Washington Post [reported in April](#).

The appeals by the Biagases and Mr. Vaussine were both successful, thanks in part to SBP's help obtaining independent damage estimates. They showed that Mr. Vaussine's house suffered \$60,821 in damage. Mr. and Mrs. Biagas had an almost identical amount of damage, \$57,735.

In the end, Mr. and Ms. Biagas received a total of \$26,000 from FEMA. Mr. Vaussine got \$35,500. In each case, SBP is paying the difference between what FEMA provided and the total cost of repairs, using money raised from donors.

Mr. Biagas said the FEMA staff he dealt with "gave no indication of any kind of racism." But he said that his neighborhood, which is predominantly African-American, is recovering more slowly than other areas nearby where most of the residents are white.

"We're still rebuilding, and they're up and running," Mr. Biagas said. "I don't understand it."

Christopher Flavelle focuses on how people, governments and industries try to cope with the effects of global warming. He received a 2018 National Press Foundation award for coverage of the federal government's struggles to deal with flooding. [@cflav](#)

A version of this article appears in print on June 8, 2021, Section A, Page 1 of the New York edition with the headline: Arrival of FEMA Aid Widens Racial Disparities. [Order Reprints](#) | [Today's Paper](#) | [Subscribe](#)

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# Assessing Social Equity in Disasters

E. Tate, C. Emrich

Disasters stemming from hazards like floods, wildfires, and disease often garner attention because of their extreme conditions and heavy societal impacts. Although the nature of the damage may vary, major disasters are alike in that socially vulnerable populations [often experience the worst repercussions](#). For example, we saw this following Hurricanes Katrina and Harvey, each of which generated widespread physical damage and outsized impacts to low-income and minority survivors.

Social vulnerability researchers seek to understand the impediments and capacities of people and communities to prepare for, respond to, and recover from extreme natural hazards. A major tool in this work is social vulnerability modeling, the use of which is expanding in large part because of [growing awareness](#) of the [social equity implications of disasters](#).

This modeling applies knowledge garnered from disaster case studies describing how chronic marginalization translates to disproportionate adverse outcomes to identify the most vulnerable population groups. Such populations often include those living in poverty, the very old and young, minoritized ethnic and racial groups, renters, and recent immigrants [[National Academies of Sciences, Engineering, and Medicine](#), 2019]. Social vulnerability modelers select demographic variables representing these groups and combine them to construct spatial indicators and indexes that enable comparisons of social vulnerability across places.

## Mapping Social Vulnerability

Figure 1a is a typical map of social vulnerability across the United States at the census tract level based on the Social Vulnerability Index (SoVI) algorithm of [Cutter et al.](#) [2003]. Spatial representation of the index depicts high social vulnerability regionally in the Southwest, upper Great Plains, eastern Oklahoma, southern Texas, and southern Appalachia, among other places. With such a map, users can focus attention on select places and identify population characteristics associated with elevated vulnerabilities.

Fig. 1. (a) Social vulnerability across the United States at the census tract scale is mapped here following the Social Vulnerability Index (SoVI). Red and pink hues indicate high social vulnerability. (b) This bivariate map depicts social vulnerability (blue hues) and annualized per capita hazard losses (pink hues) for U.S. counties from 2010 to 2019. Click image for larger version.

Many current indexes in the United States and abroad are direct or conceptual offshoots of SoVI, which has been widely replicated [e.g., [de Loyola Hummell et al.](#), 2016]. The U.S. Centers for Disease Control and Prevention (CDC) [has also developed](#) a commonly used social vulnerability index intended to help local officials identify communities that may need support before, during, and after disasters.

The first modeling and mapping efforts, starting around the mid-2000s, largely focused on describing spatial distributions of social vulnerability at varying geographic scales. Over time, research in this area came to emphasize spatial comparisons between social vulnerability and physical hazards [[Wood et al.](#), 2010], modeling population dynamics following disasters [[Myers et al.](#), 2008], and quantifying the robustness of social vulnerability measures [[Tate](#), 2012].

More recent work is beginning to dissolve barriers between social vulnerability and environmental justice scholarship [[Chakraborty et al.](#), 2019], which has traditionally focused on root causes of exposure to pollution hazards. Another prominent new research direction involves deeper interrogation of social vulnerability drivers in specific hazard contexts and disaster phases (e.g., before, during, after). Such work has revealed that interactions among drivers are important, but existing case studies are ill suited to guiding development of new indicators [[Rufat et al.](#), 2015].

Advances in geostatistical analyses have enabled researchers to characterize interactions more accurately among social vulnerability and hazard outcomes. Figure 1b depicts social vulnerability and annualized per capita hazard losses for U.S. counties from 2010 to 2019, facilitating visualization of the spatial coincidence of pre-event susceptibilities and hazard impacts. Places ranked high in both dimensions may be priority locations for management interventions. Further, such analysis provides invaluable comparisons between places as well as information summarizing state and regional conditions.

Fig. 2. Differences in population percentages between counties experiencing annual per capita losses above or below the national average from 2010 to 2019 for individual and compound social vulnerability indicators (race and poverty). Click image for larger version.

In Figure 2, we take the analysis of interactions a step further, dividing counties into two categories: those experiencing annual per capita losses above or below the national average from 2010 to 2019. The differences among individual race, ethnicity, and poverty variables between the two county groups are small. But expressing race together with poverty (poverty attenuated by race) produces quite different results: Counties with high hazard losses have higher percentages of both

impoverished Black populations and impoverished white populations than counties with low hazard losses. These county differences are most pronounced for impoverished Black populations.

Our current work focuses on social vulnerability to floods using geostatistical modeling and mapping. The research directions are twofold. The first is to develop hazard-specific indicators of social vulnerability to aid in mitigation planning [[Tate et al.](#), 2021]. Because natural hazards differ in their innate characteristics (e.g., rate of onset, spatial extent), causal processes (e.g., urbanization, meteorology), and programmatic responses by government, manifestations of social vulnerability vary across hazards.

The second is to assess the degree to which socially vulnerable populations benefit from the leading disaster recovery programs [[Emrich et al.](#), 2020], such as the Federal Emergency Management Agency's (FEMA) [Individual Assistance](#) program and the U.S. Department of Housing and Urban Development's Community Development Block Grant (CDBG) [Disaster Recovery](#) program. Both research directions posit social vulnerability indicators as potential measures of social equity.

## Social Vulnerability as a Measure of Equity

Given their focus on social marginalization and economic barriers, social vulnerability indicators are attracting growing scientific interest as measures of inequity resulting from disasters. Indeed, social vulnerability and inequity are related concepts. Social vulnerability research explores the differential susceptibilities and capacities of disaster-affected populations, whereas social equity analyses tend to focus on population disparities in the allocation of resources for hazard mitigation and disaster recovery. Interventions with an equity focus emphasize full and equal resource access for all people with unmet disaster needs.

Yet newer studies of inequity in disaster programs have documented troubling disparities in income, race, and home ownership among those who [participate in flood buyout programs](#), are [eligible for postdisaster loans](#), receive short-term recovery assistance [[Drakes et al.](#), 2021], and have [access to mental health services](#). For example, a recent analysis of federal flood buyouts found racial privilege to be infused at multiple program stages and geographic scales, resulting in resources that disproportionately benefit whiter and more urban counties and neighborhoods [[Elliott et al.](#), 2020].

Social equity has been far less integrated into the considerations of public agencies for hazard and disaster management. But this situation may be beginning to shift.

Investments in disaster risk reduction are largely prioritized on the basis of hazard modeling, historical impacts, and economic risk. Social equity, meanwhile, has been far less integrated into the considerations of public agencies for hazard and disaster management. But this situation may be beginning to shift. Following the adage of "what gets measured gets managed," social equity metrics are increasingly being inserted into disaster management.

At the national level, FEMA has [developed options](#) to increase the affordability of flood insurance [Federal Emergency Management Agency, 2018]. At the subnational scale, Puerto Rico has integrated social vulnerability into its CDBG Mitigation Action Plan, expanding its considerations of risk beyond only economic factors. At the local level, Harris County, Texas, has begun using social vulnerability indicators alongside traditional measures of flood risk to introduce equity into the prioritization of flood mitigation projects [[Harris County Flood Control District](#), 2019].

Unfortunately, many existing measures of disaster equity fall short. They may be unidimensional, using single indicators such as income in places where underlying vulnerability processes suggest that a multidimensional measure like racialized poverty (Figure 2) would be more valid. And criteria presumed to be objective and neutral for determining resource allocation, such as economic loss and cost-benefit ratios, prioritize asset value over social equity. For example, following the [2008 flooding](#) in Cedar Rapids, Iowa, cost-benefit criteria supported new flood protections for the city's central business district on the east side of the Cedar River but not for vulnerable populations and workforce housing on the west side.

Furthermore, many equity measures are aspatial or ahistorical, even though the roots of marginalization may lie in systemic and spatially explicit processes that originated long ago like redlining and urban renewal. More research is thus needed to understand which measures are most suitable for which social equity analyses.

## Challenges for Disaster Equity Analysis

Across studies that quantify, map, and analyze social vulnerability to natural hazards, modelers have faced recurrent measurement challenges, many of which also apply in measuring disaster equity (Table 1). The first is clearly establishing the purpose of an equity analysis by defining characteristics such as the end user and intended use, the type of hazard, and the disaster stage (i.e., mitigation, response, or recovery). Analyses using generalized indicators like the CDC Social Vulnerability Index may be appropriate for identifying broad areas of concern, whereas more detailed analyses are ideal for high-stakes decisions about budget allocations and project prioritization.



**Table 1. Major challenges in measuring social equity**

Issue	Challenge for Equity Measures	Measurement Considerations
Analysis purpose	Aligning analysis with end use and users	Audience, intended intervention, hazard type, disaster phase
Equity mode	Assessing distributional versus procedural equity and individual versus compounding inequity	Measuring process equity, identifying appropriate compound metrics
Validity	Reflecting underlying processes of inequity	Connecting variable selection with vulnerability processes, choosing absolute versus relative impact measures
Scale	Linking spatial and temporal scales with underlying vulnerability processes	Data availability and acquisition costs
Robustness	Determining statistical reliability	Measurement error and sensitivity analysis

Selecting the relevant modes of equity for analysis is crucial. Is the primary interest to quantify disparities in the distribution of hazard impacts or procedural disparities in accessing resources? Is the focus on individual populations or on combinations of population characteristics? As social inequities often accrue to low-income households, analysts should consider assessing economic losses in both absolute and proportional terms.

Creating valid measures of equity requires not only statistical expertise but also a fundamental understanding of the underlying processes of social marginalization. This facilitates selection of optimal proxy indicators and their geographic scales. However, practical considerations like data availability and cost can lead to indicator selection that diverges from conceptual bases. For example, for disaster assistance received by households, an equity analysis should ideally be conducted at the household scale. Unfortunately, data describing some dimensions of inequity, like race, are rarely collected by disaster agencies, necessitating analysis using census data at larger geographic scales.

A major challenge is to develop statistically robust measures and best practices for assessing disaster equity that strengthen the foundation for policy interventions

The final major challenge is to develop statistically robust measures and best practices for assessing disaster equity that strengthen the foundation for policy interventions. Doing so may require expanding current approaches to include sensitivity analyses to assess how choices of parameters (e.g., input variables, geographic scale) in building social vulnerability indicators affect the statistical stability of resulting measures, and how these measures correlate with observed disaster impacts like dislocation, assistance eligibility, and recovery time.

The stakes for improving our understanding of relationships among hazards, vulnerability, and social equity are high, as climate disasters from flooding, drought, tropical cyclones, and wildfire have been increasing in their frequency and destruction. By definition, sustainable solutions that empower communities to resist, recover from, and adapt to these threats must be not only economically viable and environmentally sound but also socially equitable. Well-designed measures of disaster equity are an important tool for quantifying disaster disparities, which is the first step toward dismantling them.

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# America's Sordid Legacy on Race and Disaster Recovery

*Angela Hanks, Danyelle Solomon, Christian E. Weller*

Six months have passed since Hurricane Maria struck Puerto Rico and the U.S. Virgin Islands. The Category 4 storm [destroyed houses and significant infrastructure](#), leaving mass devastation. Many Puerto Ricans—who are American citizens—[remain without](#) electricity, access to clean drinking water, employment, and even housing. While this storm's ferocity was [nearly unprecedented](#), the Trump administration's reaction was predictable. People of color are frequently the victims of environmental disaster while their government neglects and underserves them time and again. Too often, public officials fail to make the necessary investments in preparedness and resilience solutions, then place savings and corporate profits over the health and well-being of residents of color. The global climate is changing, and extreme weather disasters will only [increase in regularity](#). Unless the federal government prioritizes equity in preparedness and recovery policy, environmental hazards will continue to bring ruin, displacement, and death to communities of color.

Even in times without extreme weather disasters, the United States has an abysmal record when it comes to protecting people of color from environmental hazards stemming from [dangerous industrial activity](#) and harmful infrastructure. These failures undermine trust in government and persist even to this day.

For instance, in Louisiana, more than [150 industrial plants and refineries](#) have been built along an 85-mile stretch that people of color predominately populate. Known as "Cancer Alley," this stretch is home to communities with [high rates of cancer, illness, and death](#). While state officials have [downplayed the risks](#) and praised polluters for their commitment to health and safety, [U.S. Environmental Protection Agency \(EPA\) reports](#) have indicated that some chemicals emitted from these plants are carcinogenic. Due to emissions, the five census tracts with the [highest estimated cancer risks nationally](#) are in Louisiana.

Meanwhile, in Flint, Michigan, officials [diverted city water](#) in an effort to save money but [neglected to treat](#) the water to prevent corrosion as it traveled through lead service lines. Their actions exposed more than 100,000 people to dangerous levels of lead. But, for months, the state ignored the predominantly black residents' concerns and reassured them the water was safe, even as [state employees received](#) "coolers of purified water." Many residents [continue to use bottled water](#)—for drinking, bathing, and even flushing their toilets—[almost four years](#) later.

Additionally, just last year, President Donald Trump [signed an executive order](#) reviving the Dakota Access oil pipeline, which jeopardizes the water resources of the Standing Rock Sioux Tribe. His [blatant indifference](#) to months of protests reemphasizes the administration's position that Big Oil profits take precedence over the health of native people.

While the failure to adequately respond to problems facing communities of color is ongoing, it's at its most blatant following natural disasters.

Even before Maria struck Puerto Rico, emergency personnel and public health officials [understood](#) that they faced a major crisis. But when President Trump arrived in San Juan two weeks later, he [downplayed](#) the disaster. So, while the president was [throwing paper towels at the survivors](#) of the

storm, there was no real effort to fix the approximately [\\$100 billion](#) in damage or help the families of the estimated [1,000 people](#) who lost their lives. At a time when real policy solutions were needed, the president's misleading statements and actions undermined recovery and rebuilding efforts by diminishing the urgency of the situation.

Just weeks after the storm, Puerto Rico asked the U.S. Congress for [\\$94 billion](#) to fund recovery and rebuilding efforts. Since then, Congress has appropriated a mere [\\$23 billion in direct aid](#), and the Trump administration has only spent a fraction of it. As a result, approximately [1 in 10 Americans in Puerto Rico and the U.S. Virgin Islands](#) remain without power—and thousands [still await](#) permanent access to clean water and housing. These problems heighten the risk of [respiratory illnesses](#), heart disease, post-traumatic stress disorder (PTSD), and myriad other health issues. Due to the slow response from Washington, D.C., Puerto Rico and the U.S. Virgin Islands have [barely begun](#) the long road to recovery. Now, as winter turns to spring, the people of Puerto Rico face the hottest and rainiest months of the year, as well as a looming hurricane season that [threatens to worsen](#) this nightmare scenario.

Hurricane Harvey dumped [27 trillion gallons](#) of rain on Texas and Louisiana. Houston—which is now home to as many as [40,000 Katrina survivors](#)—was [inundated](#) with water. Months after the storm dissipated, Hispanic and black residents were [twice as likely](#) as their white counterparts to report experiencing an income shock following the storm and then not getting the help they needed to recover. White residents were twice as likely as black residents to report that the Federal Emergency Management Agency had already approved their applications for relief.

However, inequitable disaster response transcends the Trump administration. In 2012, Hurricane Sandy [tore through New York and New Jersey](#), killing 159 people and causing \$70 billion in property damage. In much of the region, [low-income people and people of color](#) were hit the hardest. Yet, they [did not receive equal attention or resources](#) from government officials. In particular, [New Jersey's policies and practices](#) for [recovery favored largely white homeowners](#) at the expense of largely black and Hispanic renters. To this day, many buildings that [house some of America's most vulnerable families](#) remain unrepaired and unprepared for extreme weather in the future.

In 2005, under the George W. Bush administration, Hurricane Katrina resulted in [nearly 2,000 fatalities](#) and displaced an estimated [1 million residents](#). African American communities, especially in metropolitan New Orleans, were [disproportionately affected](#) by the storm and underserved by the federal government. Rather than receiving the resources they needed to recover, rebuild, and return to their homes, many were [forced out of Louisiana](#) completely. Ten years after Katrina, [90 percent](#) of New Orleans residents had returned to their neighborhoods, yet just 37 percent of residents from the predominantly black Lower Ninth Ward had come home. Today, there are [92,000](#) fewer African Americans living in New Orleans compared with before Katrina.

Hurricane Maria—in addition to the past extreme weather events noted above—provides yet another chilling reminder of the consequences of systemic racism in America. Time and again, communities of color have been left behind. By 2043, these communities will [constitute a majority](#) of the U.S. population. Therefore, policymakers must ensure they are fully equipped and prepared to withstand extreme weather fueled by climate change. Instead of employing [dog-whistle rhetoric](#) about how Katrina survivors are “[a bunch of whiners](#)” or how Puerto Ricans “[want everything done for them](#),” elected officials must promote equity; provide long-term aid to disaster-affected regions; and [invest in resilient housing and infrastructure](#) for a changing planet.

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