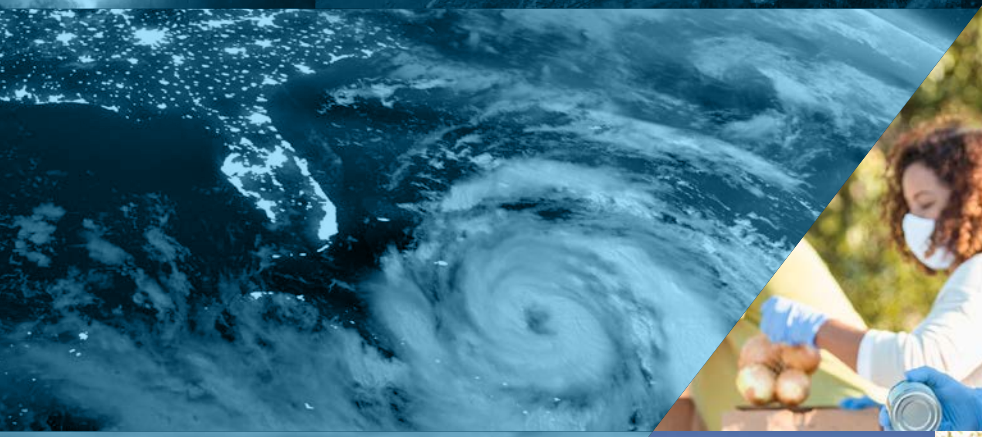



FROM RUIN TO RESILIENCE:

Protecting Communities and Preventing Disasters

Congressman Earl Blumenauer

October 2021

Contents

This report seeks to give the reader a sense of both the state of play of ongoing disasters and the solutions at hand. I will describe how disasters are defined under the law, how they relate to climate change, what ongoing disasters are doing to our communities, the resources we have to address disasters, and policy ideas to improve our approach. This report focuses on federal disaster mitigation and recovery programs. While I aim to be comprehensive, I acknowledge that there are many affected sectors and agencies that merit additional consideration. This is the beginning of what I hope will be a much larger conversation. My goal is to convey both the urgent and dire nature of this moment while providing a sense of hope that we have the tools to change course and better protect our communities.

Earl Blumenauer

Introduction

The cascade of recent extraordinary weather events has made clear, as if we needed further reminders, that we are entering a new era in terms of the impact and public awareness of climate disasters.

In the Pacific Northwest, already this year, we've had unprecedented heat waves that killed hundreds of people and devastated communities, as well as a record winter storm that left thousands without power in freezing temperatures for days. In Texas, we saw an even more brutal cold snap that killed dozens of people in their homes. Wildfires have raged out of control, with unprecedented acreage burned. In Oregon, 1,891 wildfires claimed more than 800,000 acres this summer.[1] In the Western United States and Canada, the fires could be seen from space.

The devastation we saw in the United States was part of a much larger pattern of destruction. Climate related disasters are disrupting communities, industries, food and water supplies, transportation, security, ecosystems, health, and more.

This is especially complicated because, disproportionately, the communities most affected are the most vulnerable—whose experience is compounded by existing racial and social inequalities. Researchers have found that Black, Latino, and low-income families are more likely to live in high-risk areas like flood zones, less likely to have money to harden infrastructure and homes in advance of disasters, less likely to have the resources to evacuate during disasters, and less likely to receive assistance during recovery periods.[2]

Poor people have and continue to be pushed into areas that are at the highest risk for disasters. And, because of redlining, racist housing covenants, and other blatant discriminatory practices, people of color have also been forced to live in neglected, dangerous, and high-risk places. In many cases, poorer communities are further disadvantaged because they don't have the money to match federal grants or they lack the resources to prepare a competitive grant application. This leaves thousands of communities with limited resources in the face of what will continue to be harrowing and prolonged storm seasons and extreme temperatures. Consequently, policy aimed at addressing disasters must also take into account historic social inequities, vulnerabilities, risk, and differential impacts. Unfortunately, the nation's disaster policies are themselves a disaster and perpetuate inequalities because of a lack of a coherent policy framework.

The Federal Emergency Management Agency (FEMA) is the central federal agency tasked with preparing for and responding to disasters across the country. As disasters grow in frequency and scale, FEMA assistance is increasingly oversubscribed and overspent. And, at a time when Americans are demanding racial justice, environmental and civil rights advocates are warning that FEMA's pre-disaster mitigation grants are especially ill-equipped to help disadvantaged areas.[3]

Congress must work to dramatically increase federal investment in pre-disaster mitigation and targeted disaster recovery to strengthen infrastructure, to support affordable and resilient housing, and to help families, businesses, and communities seeking federal assistance move out of the riskiest areas. Not only does this type of investment make good economic sense, it also presents an opportunity to address historic wrongs, mitigate and adapt to climate change, and save lives.

I have been working on these issues long before

my time in Congress. As a state legislator and local government official, I helped establish and implement Oregon's pioneering land use planning and resource protection program. As Portland's Commissioner of Public Works, I managed the City's Emergency Communications Center, Bureau of Environmental Services, and Bureau of Transportation. In February 1996, I joined public works crews as we built seawalls to protect downtown Portland from historic flooding of the Willamette River.

Since coming to Congress, I have continued to work toward commonsense reforms that prioritize mitigation and preparedness in the face of increased risk of disasters. I have led the effort for flood insurance reform, improved disaster management, and thoughtful land use to minimize risk and damage, all to save costs and prevent future loss. In 2004, I co-authored and helped pass the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act changing the National Flood Insurance Program to provide mitigation assistance to property owners who deal with repetitive flood areas. In 2007, the House passed my legislation to require FEMA to take climate change into account when updating its floodplain maps. And, in 2012, I again helped lead efforts to reform the National Flood Insurance Program by working to pass the Biggert-Waters Flood Insurance Reform Act, which phased out insurance subsidies for high risk, repetitively flooded properties. After Hurricane Katrina, I was the first member of Congress to bring people together to explore disaster mitigation efforts. After the Southeast Asian tsunami in 2006, I was on the ground in Thailand and Indonesia learning from the destruction and the emergency response.

While there have been recent encouraging developments, I continue to be deeply concerned about the inadequate federal investment in and policy for community preparedness, resilience, and risk mitigation. We've wasted too much time looking backwards, not forwards. As we are clearly in a new era of climate disasters, we must begin a new era—one that meets the moment with bold and transformative action. We no longer have time to waste.

What Are Disasters

The federal government has a long history of responding to major disasters, which are defined in the Stafford Act as "any natural catastrophe including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under [the] Act."[4]

Disasters are part of every state's experience throughout history. For generations, disasters like flooding, wildfires, windstorms, earthquakes, and other extreme weather events have been a part of our reality. However, these events are becoming more powerful, intense, and frequent due to climate change, and as a result they have far more devastating effects on communities, particularly those in high-risk areas. The recent Intergovernmental Panel on Climate Change (IPCC) report makes clear this is our future and it will only get worse absent immediate efforts.[5]

Disasters and Climate Change

Scientists say that even incremental increases in temperature can cause exponentially worse climate impacts and disasters. Melting polar ice has raised the global average sea level between eight to nine inches over the last century. According to the National Oceanic and Atmospheric Administration (NOAA), flooding during high tides has doubled in the last 20 years in America.[6] Some communities in South Florida, for example, experience routine "sunny day flooding."[7] Rising waters also increase flooding risks during hurricanes.

> Between 2000 and 2019, more than 4 billion people were affected by natural disasters worldwide, and more than 1.2 million died.

According to the United States Geological Survey, as temperatures rise, water evaporates into the atmosphere where it becomes fuel for more powerful storms. More heat in the atmosphere and ocean can also fuel increased wind speeds in tropical storms. Rising sea levels mean that more of the landscape is exposed to waves and currents, which results in water-based erosion.

Climate change also is responsible for over half of the increase in fuel dryness in western American forests that has occurred in the last 50 years, aggravating risks from extreme wildfire behavior. As disasters become more frequent, more intense, and more dangerous, they have far-reaching impacts on people and the environment.

Part of this impact can be measured in dollar figures. According to NOAA, in 2020 there were a record 22 weather and climate disasters costing $1 billion or more across the country, shattering the prior annual record of 16. These events, which included tropical cyclones, severe storms, drought, and wildfire, cost the nation a total of $95 billion in damages. The total cost of these billion-dollar disasters in the United States has been increasing—the price tag for these disasters over the five-year period of 2016-2020 is more than $600 billion, a new record.[8]

Of course, human life is the ultimate measure of cost. Between 2000 and 2019, more than 4 billion people were affected by disasters worldwide, and more than 1.2 million people died.[9] These statistics represent not just the devastating impact of climate disasters across the globe, but also the critical importance of disaster risk reduction to protect lives and communities. This is especially true for the world's most vulnerable populations, including low-income communities and communities of color, which are more likely to suffer disproportionate effects from disasters. Across the country, studies have repeatedly shown that people of color are more vulnerable to disasters such as heatwaves and extreme weather events, as well as ensuing social and economic impacts. Many vulnerable people are experiencing concurrent or consecutive disasters, increasing their risk and the overall damage.

Moving forward, federal policy must ensure that these vulnerable communities are identified, and that their needs and capacities are understood and addressed. Most importantly, resources must be prioritized and allocated to help these under-resourced communities recover, rebuild, and prepare for the future.

Ongoing Disasters

WILDFIRE—CHALLENGES

Wildfires are increasingly the most prevalent and far-reaching climate-fueled disasters. Although they are historically a natural occurrence across much of the western United States, western wildfires have grown in size, intensity, and frequency. According to the National Climate Assessment, increased global temperatures, drought, and pest outbreaks—all caused or worsened by climate change — have dramatically increased the risks of wildfire.[10] In some cases, most prominently in California, aging infrastructure like power lines and transmission towers are actually causing fires and resulting in electricity blackouts across the state.

As of the writing of this report, over 6.4 million acres have burned across the country, with over two million in California alone and over 800,000 in Oregon.[11] Climate-fueled weather conditions, intensified by a century of inappropriate fire suppression policies and practices, are increasingly creating mega-fires so powerful that they generate their own weather.

The toll on communities is unprecedented and will get worse. In 2020, during one of the most destructive wildfire seasons in Oregon's history, a shocking total of 4,009 homes burned.[12] In 2018, the town of Paradise, California burned entirely to the ground. This year, the Canadian town of Lytton, British Columbia set an all-time heat record for Canada at 121° and then burned completely to the ground the following day. Wildfire smoke events are also increasingly impacting community health. In 2020, one in seven Americans experienced dangerous air quality due to wildfires.[13] These conditions pose especially severe risks to agricultural workers and others whose employment is based outside.

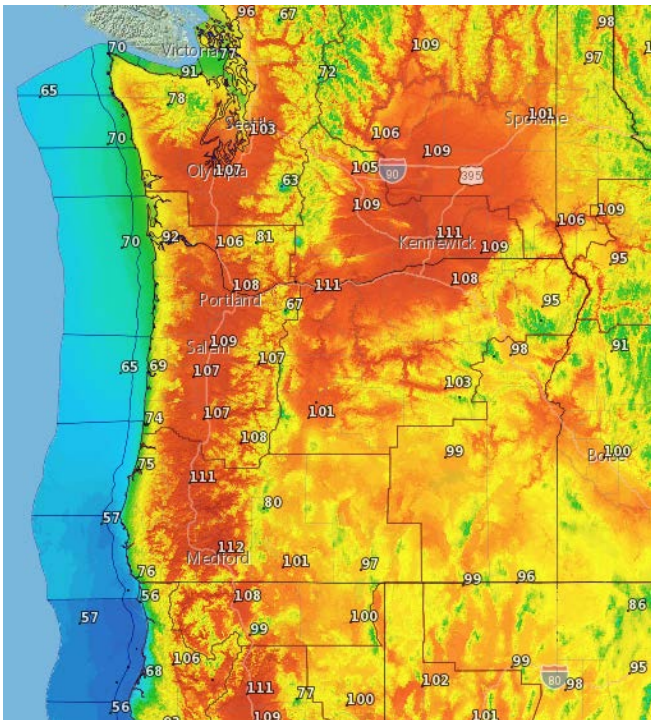
These fires also have staggering financial costs. Between 2008 and 2017, the United States incurred more than $5 billion in wildfire losses. In the 2018 season, that number jumped to $24.5 billion. At the same time, between 2000 to 2016, the U.S. spent between $809 million to $2.1 billion annually on wildfire suppression.[14] The costs continue to spiral out of control.

WILDFIRE—SOLUTIONS

The federal government has a significant role to play in advancing wildfire resilience-based codes and standards. California is currently the only state with building codes that address wildfire risks, like requirements for fire-resistant materials. Congress should incorporate fire considerations in consensus-based codes and standards to ensure that people and their property are adequately prepared for the risk of wildfire. Congress must also ensure that utilities are held to similarly high standards so that utility infrastructure is not an additional fire risk for communities. Congress can also provide additional resources for community planning and implementation, as well as technical assistance for mitigation measures.

Though we can be doing more to prepare homes and communities for wildfire risk, we must also stop putting people and property in places that are at the highest risk. The United States Forest Service (USFS) reports that people are moving into high fire hazard areas, also known as the wildland-urban interface (WUI), at a rate faster than any other area.[15] Development in the WUI dramatically increases chances of wildfires and greatly complicates the response. To the greatest extent possible, we should be preventing new development and rebuilding in areas that are most at risk.

The increasing risk of wildfires necessitates both better land use planning to avoid new settlement of the WUI and better standards for people who are already there. The current piecemeal approach, with lax regulations and a lack of coordination between levels of government, is wholly inadequate for the level of risk to our communities. We must invest in a more comprehensive national wildfire mitigation strategy that leverages programs across the federal government to reduce the risk of loss of life, property, and natural resources to fire.



EXTREME TEMPERATURE EVENTS—CHALLENGES

The warming climate is fueling more intense storms and extreme weather such as heat waves, freezes, and heavy precipitation. The IPCC predicts hotter temperatures and more frequent and intense heatwaves across the globe.[16] No area is immune. And while this was already a trend, the events of this summer were shocking to us all.

Oregon and the surrounding region experienced two extreme heatwaves this summer. In June, Portland broke its own all-time heat record over three consecutive days with temperatures of 108°, 112°, and 116°. This led to more than 500 deaths across the region, including seniors, people experiencing homelessness, outdoor laborers, and at least one farmworker.[17] Extreme heat poses serious health threats for vulnerable populations, especially the unhoused, the elderly, children, and those with pre-existing medical conditions. It also increases demand for air conditioning, which contributes to pollution and strains the energy grid.

In a somewhat ironic twist, warmer air increases evaporation which can fuel powerful storms. Often, this means heavier precipitation like torrential rain and catastrophic snowstorms. Extreme temperatures do not just place stress on the electric grid, as evidenced early this year in Texas, they also shorten the life of highways, roads, bridges, and railways, and threaten evacuation routes.

While winters overall are becoming shorter and milder, recent years have also seen record-breaking frosts and intense snowstorms interspersed throughout the season. In February 2021, a powerful ice and snowstorm left hundreds of thousands of people in Oregon without power. Just days later, nearly 4.5 million homes in Texas were without power as record-breaking snowstorms and icy conditions caused heating demands that overwhelmed the region's power supply. Over 100 people died in a matter of days, and the storms caused an estimated $295 billion in damage.[18]

EXTREME TEMPERATURE EVENTS—SOLUTIONS

Federal agencies like FEMA are not adequately prepared to deal with extreme temperature events. This is in part because extreme temperature is not specified as a type of disaster in the Stafford Act or other disaster-related legislation. Congress must give federal agencies like FEMA the authority to respond to these extreme weather events by incorporating them into the definitions of disasters. Additionally, Congress must invest in heating and cooling infrastructure for homes and buildings through agencies like FEMA, Department of Energy (DOE), and the agency for Housing and Urban Development (HUD).

Recently, the Occupational Health and Safety Administration (OSHA) announced a new rule to combat heat illness when the heat index is over 80 degrees.[19] This is welcome news. Oregon and California are currently the only states with worker protections for extreme heat events. A federal standard is urgently needed to protect the health and safety of outdoor laborers.

The Center for Disease Control's data show that more people die of extreme heat in the U.S. each year than from floods, tornadoes, or hurricanes.[20] Congress has the tools to better protect people and communities from the worst impacts of these extreme heat events.

FLOODS—CHALLENGES

During a single week in July 2021, underground rail stations in New York City and London were flooded and forced to close and 33 people died while trapped on subway trains during catastrophic flooding in Zhengzhou, China. Weeks later, during Hurricane Henri, harrowing footage emerged of people wading through waist-deep water to escape the flooded subway stations in New York. Then came Hurricane Ida. Ida set the record for the heaviest one-hour rainfall in the city's history—3.15 inches. This broke the record set by Henri just days earlier. The damage was astonishing. The total damage from Ida alone is estimated to total around $95 billion. The storm also killed at least 80 people across eight states, including more than 20 people attempting to flee the rushing floodwaters in their vehicles.[21]

Even though scientists have warned of the risk of extreme weather events, many have been shocked by the scale and scope of what we've seen this year. Recent studies also show that, even in states where rainfall totals have not changed, the wettest storms have intensified and caused more financial damage as a result. FEMA's data show that the cost of flood damage averaged $17 billion annually between 2010 and 2018.[22] In 2021, given the magnitude of recent unprecedented floods, the damage will already far surpass that average.

The National Flood Insurance Program (NFIP) began as a means of compelling localities to protect natural floodplain areas and restrict development in risky areas. NFIP has only had modest success and is ill-equipped to deal with the impacts of climate change. The program's approach to floodplain management is decades out of date, and its reliance on an overly simplistic notion of a flood zone has contributed to public misunderstanding about flood risk. Flood insurance rates are also unrealistically low—if required at all. Reuters reports that FEMA would need to increase insurance rates by 4.5 times to cover current flood risk.[23] With so many people remaining uninsured or rebuilding in high risk insured areas, FEMA will continue to run a growing deficit.

The program also continues to waste money while putting people in harm's way. Approximately 30,000 homes across the United States, known as severe repeat loss properties, have flooded multiple times. One home in Batchelor, Louisiana has flooded 40 times and received a total of $428,379 in insurance payments.[24] Congressional Budget

Office reports show that NFIP will continue to run deficits averaging approximately $1.4 billion per year. The flood insurance program is designed to help people rebuild in the same location where they were flooded, a perilous strategy in the face of climate change.

FLOODS—SOLUTIONS

First and foremost, Congress must act to modernize NFIP. An updated program will need to better reflect current and future risks of climate change, improve mapping, eliminate incentives for development in flood-prone areas, increase support for mitigation, and reduce the impacts of repeated flooding on communities. Congress must also work with states to increase resilience through enhanced pre-disaster mitigation, including through watershed investments, nature-based mitigation strategies, and limiting development in risk-prone areas. Finally, Congress must make sure our public infrastructure, including roads, bridges, schools, hospitals, and other critical infrastructure, is flood ready through significant investments in resilience.

It is worth mentioning that earlier this year, FEMA announced an updated risk rating structure that will use industry flood data, best practices, and catastrophic modeling to set insurance rates. The updated program encourages flood mitigation by offering lower premiums in exchange for risk reduction actions, such as elevating utilities. In a world of growing flood risks, this is an important step forward.

Moving forward, we must equip communities to better prepare for flooding disasters, prioritize resilience, and discourage development in high-risk areas. Congress should provide greater resources for mitigation, adaptation, and resilience, and provide agencies with better guidance on whether it is appropriate to rebuild in flood-prone areas. The policy should be reinforced by putting more of the costs on risk-prone developers, as well as local and state governments that are allowing those risky development decisions. We cannot afford to shield bad actors from the inevitable consequences of reckless action.

DROUGHT—CHALLENGES

As record-breaking storms and wildfires ravage communities across the United States, widespread drought has been worsening with the risk of becoming permanent. Warming temperatures results in reduced snowpack, earlier snowmelt, and changing precipitation patterns which intensify stress on water systems. Many places that already experience water scarcity are the most hard-hit.

NOAA has reported that ongoing drought conditions since summer 2020 have persisted or worsened across vast portions of the continental United States. Almost all of the high plains and western regions have been experiencing some level of drought throughout the past year. Since the spring 2021, over 90 percent of Oregon has been classified as being in severe drought, or worse. These conditions are expected to continue and spread, especially in the southwest.[25] This not only poses a greatly increased risk of wildfire, it is also disastrous for agriculture and already-stressed irrigation systems, as well as the resilience of our natural infrastructure which helps mitigate further damage from climate change.

Agriculture sustains 82 percent of the impact of drought, according to the United Nations Food and Agriculture Organization.[26] The primary direct economic impacts of drought in the agricultural sector are crop failure and pasture losses. In Oregon, farmers and ranchers are experiencing low yields, shrinking rangelands, hay shortages, and grasshopper and cricket infestations. Drought also heavily impacts specialty crops, upon which Oregon farms and nurseries largely rely. In addition, the July 2021 Oregon Agriculture Natural Disaster Briefing detailed the compounding effects of disasters on farmers and ranchers.[27] Between the ongoing drought, the February freeze, and the June and August heatwaves, the losses for many farmers in 2021 have been staggering.

DROUGHT—SOLUTIONS

There are several U.S. Department of Agriculture (USDA) programs that provide relief to farmers, ranchers, and producers who have suffered damages related to drought. However, Oregon agricultural producers have difficulty getting relief from these programs because they are mainly

designed for commodity crops, not specialty or other diverse crops. In addition, some USDA programs only cover mortality losses of trees, bushes, and vines. In the case of Oregon nurseries and vineyards, they may not have suffered mortality loss in the extreme weather of the last several years but may have suffered loss of fruit or nuts that left the plants with no value. Some of this is already being address in this year's Continuing Budget Resolution, but Congress must continue to better incorporate small and specialty crop agricultural producers into federal drought relief programs.

Overall, Congress must invest in programs that support crop-diverse farms, community water resilience, and water conservation and efficiency. Congress must also support projects to reclaim and reuse wastewater and stormwater runoff sustainably. This is being done already in parts of the southwest but must become the norm. Ultimately, there is no choice but to accept the reality of increasingly dry conditions and work to improve resilience and conservation.

EXTREME STORMS—CHALLENGES

As global average temperatures rise, the oceans are also warming over time. Even small changes in ocean temperatures can have disastrous impacts, such as intensifying hurricanes and cyclones. As we have seen, rising sea levels are also amplifying coastal storms surges. The impacts of this summer's hurricanes and their lingering effects provide a graphic illustration.

Last year 2020 marked the tenth consecutive year with eight or more billion-dollar disasters. The extremely active 2020 Atlantic hurricane season saw a record-breaking 30 named tropical storms, including six major hurricanes. Notably, the 2020 season exhausted the World Meteorological Organization's 21-name list. Hurricane Laura, which was the first major hurricane of the record-breaking 2020 Atlantic hurricane season, was the most expensive weather event of the year with a total cost $19 billion. However, Hurricane Katrina (2005) remains the most expensive hurricane on record costing a then-shocking $168 billion total.[28]

Hurricane Katrina continues to be a prime example of what happens when we neglect our nation's infrastructure. In 2004, I took to the House floor and warned that in New Orleans "there is the potential of a 30-foot wall of water putting at risk $100 billion of infrastructure and industry and countless lives."

Sadly, Hurricane Katrina proved the city's storm protection system was unfit to handle a predictable disaster and left 80 percent of New Orleans flooded. We lost more than 1,800 people and left about a million people displaced in the aftermath of the storm. In the months following the storm, I put together a working group which called for a rethinking of development, new parks and natural infrastructure, buffer zones in areas where homes should not be, and economic projects designed to put local people back to work.

Soon after Katrina, Congress approved nearly $15 billion in projects to protect the greater New Orleans region, including massive floodgates and storm surge barriers. City planners initially came up with sweeping proposals to rebuild a safer, stronger New Orleans: consolidating its smaller population into neighborhoods on higher ground and transforming low-lying areas into parkland and drainage. These proposals were largely dismissed because of public reluctance. Ultimately, government leaders and residents tried to enhance urban resilience through recovery projects like home elevation, with considerations for strengthening hurricanes, rising

sea levels, and climate change. However, many people returned after the storm to neighborhoods that are extremely vulnerable to flooding.[29]

Ultimately, the damage that Katrina wrought upon the Gulf Coast was compounded by petroleum and hazardous materials released from the region's shipping, refining, and petrochemical industries, which were hard hit by the storm. Other important factors included risky development, low building standards, a lack of statewide building codes, a lack of emergency planning, and a vulnerable power grid.

EXTREME STORMS—SOLUTIONS

We are still learning these lessons more than 15 years later. During Hurricane Ida, for example, we saw both the effectiveness and limitations of Louisiana's new storm surge barriers and levees. Inside the barriers, the system worked as designed, sparing the worst storm damage. Yet the conditions the system was designed to protect against will keep getting worse. As the ground continues to sink and sea levels continue to rise, current flood barriers will not continue to serve us effectively.

Congress must help homeowners and renters better understand the risk they are taking on when purchasing or renting property. Risk disclosures should be uniform and required for all residential properties. Congress must also require minimum federal standards for buildings, the adoption of updated building codes, and an assessment of the benefits of relocation over rebuilding. We must rethink city planning as we prepare to do more than just rebuild.

SLOW-ONSET DISASTERS—CHALLENGES

Slow onset disasters, like desertification, sea level rise, and coastal erosion, are risks experienced by a region or community gradually over time. They are at once some of the disasters most directly linked to climate change, and the hardest for which to gain attention and resources. They are also some of the main drivers of climate displacement and migration, creating climate refugees, which impacts global stability and national security.

The impacts of these slow onset disasters are real. Coastal communities are particularly vulnerable to sea level rise. High tides and coastal storms have already amplified coastal flooding and erosion, a trend that will continue. Climate change and sea-level rise are already impacting coastal communities in many locations worldwide, including the western United States, Alaska, Hawai'i, and the Pacific islands.

SLOW ONSET DISASTERS—SOLUTIONS

Notably, sea-level rise, desertification, and coastal erosion are not currently included in FEMA's disaster definitions. Therefore, they often do not qualify under FEMA pre-disaster mitigation, or post-disaster mitigation unless there is a discrete incident such as the collapse of California's famed coastal Highway 1. Congress can include these slow-onset disasters in federal disaster legislation and programs so that agencies have the authority to help address these ongoing disasters.

Congress can also better equip communities to invest in resilient infrastructure and natural solutions that mitigate the risks of slow-onset disasters. Natural features such as marshes, wetlands, and forests can help address polluted runoff and increase infrastructure resilience against sea level rise, flooding, storm surges, and other impacts. In New York, for example, landscape architects are building sloping rock formations and "reef streets," solving two problems at once: mitigating the impacts of sea level rise and flooding while providing local communities with local oysters and fish.[30] These types of green infrastructure projects can be more cost-efficient than traditional infrastructure and help to provide stable jobs through both project creation and maintenance.

PANDEMICS/DISEASE—CHALLENGES

Since March of 2020, the entire globe has been gripped by the COVID-19 pandemic. We are witnessing another harbinger of what is to come with climate change: increased pandemics, pests, and diseases. The combination of biodiversity loss, wildland destruction, globalization, and global warming pose new risks for the emergence of novel diseases.

Over the past few decades, new infectious diseases, particularly coronaviruses and other respiratory illnesses originating in bats and birds, have increasingly spread to humans. Scientists tell us that the world's bat population alone is harboring an estimated 3,200 strains of coronavirus which could spread to humans.[31] In addition, vector-borne diseases are increasing as rising temperatures and changing precipitation patterns expand areas of the planet vulnerable to contagion. Changes in the climate can also resurrect old viruses that, until now, had ceased to pose a threat to humans. In 2016, scientists hypothesized that a mysterious anthrax outbreak in Russia was linked to melting permafrost which resurrected the contagion from a frozen reindeer.[32]

The human impact is staggering. The COVID-19 pandemic has literally shut down entire cities, causing a dramatic loss of human life across the globe with devastating economic and social disruption. The pandemic has laid bare the fragility of our global food and healthcare systems. Vulnerable populations, especially low-income communities, communities of color, and indigenous populations, are facing ongoing humanitarian crises.

Around the world, people are experiencing the combined impacts of the pandemic along with other climate-fueled disasters such as flooding, extreme storms, and wildfire. These cumulative impacts amplify existing social, environmental, and economic disruption. As usual, our most vulnerable populations are the least prepared, receive the least support, and are the most directly and immediately harmed.

PANDEMICS/DISEASE—SOLUTIONS

We are still learning many lessons from the COVID-19 outbreak and spread. Moving forward, federal, state, and local agencies must support public health leadership and science, including robust funding for research, response planning, and supplies. Of course, we need to think proactively about the causes of pandemics.

For example, illegal wildlife trade is a proven source of disease transmission between animals and humans. Similarly, deforestation is a leading cause of the loss of biodiversity as well as impacting animal migrations, both of which increase the risk of infectious disease spread. Our agricultural practices rely on raising billions of animals in close quarters which creates a huge risk of transmission between animals and humans.[33] The federal government has the tools to address these issues and must act to help us avoid another pandemic.

COVID-19 has shown us just how connected these issues are. We need to address climate change, reduce air pollution, prevent illegal wildlife trade, thwart illegal deforestation, and rethink many of our agricultural practices. We cannot return to "normal" now. We must re-evaluate the risk of our everyday activities that have led us to this point. Just as the problems are interconnected, so too are the solutions.

Changing Our Approach

CLIMATE MITIGATION

Since 2015, the United States has experienced more than 81 individual disasters, amounting to $630.2 billion in economic losses, and close to 4,000 deaths.[34] The climate crisis will only worsen these trends of increasing risk, cost, and volatility. These impact low-income households, farmers, and already-marginalized communities hardest, compounding existing challenges to livability, health, and social resilience. These trends and inequities will only get worse with time.

In order to mitigate the worst of these disasters, we must act. It is imperative to cut emissions, reduce pollution, address environmental racism, and increase resilience. We have the power to turn this existential threat into an opportunity to revitalize the nation's energy and manufacturing sectors, boost economy-wide growth, and create jobs. This is an opportunity for America to become the world's clean energy leader and bring the rest of the world along with it. Done right, we can build a stronger, healthier, and more just world for all.

PRE-DISASTER MITIGATION

The evidence is clear that investments in hazard mitigation reduce the cost of disaster response and recovery. In response to the 2017 hurricane season, FEMA Administrator Brock Long testified in the House that, "I cannot overstate the importance of focusing on investing in mitigation before a disaster strikes…building more resilient communities is the best way to reduce risks to people, property, and taxpayer dollars."[35] Most federal mitigation investments, however, are made after a disaster occurs.

The federal government funds mitigation programs primarily via FEMA, although support also comes from other agencies. It is an impressive list: the Department of Housing and Urban Development's (HUD) Community Development Block Grant Disaster Recovery Program, the Small Business Administration's Disaster Loan Program, the Department of Commerce's Coastal Zone Management Administration Awards, and the Department of Agriculture's State Fire Assistance Program, among others. Some agencies also implement their own mitigation measures directly, such as construction and maintenance of flood-control systems by the U.S. Army Corps of Engineers.

> "I cannot overstate the importance of focusing on investing in mitigation before a disaster strikes…building more resilient communities is the best way to reduce risks to people, property, and taxpayer dollars.
>
> FEMA Administrator Brock Long

FEMA has three main pre-disaster grant programs; the Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), and Flood Mitigation Assistance (FMA) Grant Program. Through these programs, FEMA provides

financial assistance to state and local governments to engage in mitigation activities, such as seismic retrofits and construction of flood-resistant bridges. This assistance is a powerful tool to encourage change in behavior and should be utilized.

Congress must address several challenges related to these programs. The first is chronic lack of funding, despite the ongoing climate emergency. For the Fiscal Year 2020 grant application cycle, FEMA received nearly $4 billion in applications for the BRIC and FMA programs but had only $700 million total to disburse.[36] This means more than half of the local governments that applied received no grant funding. This continues the trend of oversubscription and demonstrates the need for hazard mitigation.

Second, FEMA's own analyses show that low-income communities are less likely to get federal emergency assistance.[37] Low-income families are more likely to live in flood zones and less likely to have money to harden infrastructure in advance of disasters. Often this is because poorer communities lack the resources to prepare competitive grant applications and/or lack the funds needed to match the grant, an insurmountable obstacle for many poor communities.

Finally, although FEMA is increasing its activities related to adaptation for extreme weather events, the agency does have the authority to address extreme temperatures and slow onset disasters. FEMA's role and authority in response to climate change, especially as it relates to pre-disaster mitigation, needs be clarified. Because many agencies' authorizing statutes are hopelessly deficient when it comes to climate change, our federal government as a whole is not adequately prepared to deal with disasters like extreme temperatures and sea level rise.

It is past time for Congress to address these challenges of the new climate reality, chronic underfunding, and inequities within pre-disaster mitigation. Our government agencies must be empowered to deal with the most critical disaster of our times: climate change.

SENDING THE RIGHT SIGNALS

One common question in the aftermath of disasters is why people were allowed to build in such dangerous places in the first place. While the federal government has some authority to regulate decisions about where and how to build safely, it is critical for the federal government to be joined by states and localities, which have authority over land use, as partners in the resilience effort.

Tens of millions of homes, businesses and other buildings are concentrated in areas with the highest risk. Unfortunately, most people who live in disaster-prone areas are simply not aware because that risk is not disclosed to home buyers or renters. Only about half of states require that flood risk be disclosed to homebuyers, and only one state requires that such information be given to tenants. Similarly, only two states require disclosure of wildfire risk. A growing body of research suggests that existing risk disclosure laws provide insufficient or confusing information too late in the homebuying process.[38]

Federal action is needed to develop meaningful risk information and to disclose it to homebuyers and renters. Communities and households need access to this information to be able to make decisions and prepare for natural hazards that are increasing with climate change. Congress must also work with state and local governments, through incentives or mandates, to stop risky future development in the first place. Currently, developers have little incentive to factor risk into account because they are not responsible for the post-disaster relief.

> “After every disaster, we have an opportunity to rebuild infrastructure that is more resilient in the face of future disasters if we require higher standards, in safer places. The cost savings would be tremendous—beyond dollars, in lives saved, suffering reduced, and future disasters prevented.

Federal guidance is also needed on climate-informed building codes and standards. A 2020 study showed that 84 percent of people support mandatory building codes in risky areas and 57 percent support making it illegal to build in those areas at all.[39] Congress should incorporate fire considerations in consensus-based codes and standards to ensure that people and their property are adequately prepared for the risk of wildfire.

As state, local, and federal officials consider new approaches to development, it is important that they consider the effects of those changes on poorer communities and communities of color. While some environmentally vulnerable areas may be attractive to residents because of scenery or amenities, some families cannot afford to live elsewhere or were forced there through years of housing discrimination. As officials work to incorporate the cost of disasters into insurance premiums or ban development in risky areas, they should consider the historic marginalization of residents. The disproportionate impact that these decisions may have on certain residents or communities is not a reason to avoid stronger policies. We are capable of crafting policies that are effective yet cushion the impact on the poor or marginalized—it is imperative that we do both.

POST-DISASTER MITIGATION

Disaster recovery and post-disaster mitigation, if done properly, can provide an opportunity to minimize risk, improve resilience, and address problems that existed long before disaster struck. Historically, the federal government has failed to see disaster recovery as such an opportunity. Instead, post-disaster recovery has focused on repairing physical damage and restoring affected communities to the way they were before. However, post-disaster spending is essentially the nation's biggest ongoing infrastructure project and should be treated as such. With every disaster, we should be asking ourselves not merely how we build back but demand how we can build back better. As disaster spending continues to rise, governments at all levels must use this funding to focus on climate and resilience, as well as equity.

After every disaster, we have an opportunity to rebuild infrastructure that is more resilient in the face of future disasters if we require higher standards in safer places. The cost saving beyond dollars would be tremendous—in lives saved, suffering reduced, and future disasters prevented. Indeed, given the current political realities and funding challenges this could be the only source of the funding on the scale so desperately needed.

Solutions

1 We must acknowledge that marginalized and impoverished people and people of color are disproportionately impacted by climate change and disasters.

2 Economic and racial justice needs to be a priority in every adaptation and recovery program.

3 In order to mitigate the worst of these disasters, we must act on climate change. This includes reducing emissions, cleaning up pollution, and increasing overall resilience.

4 The federal government must revamp federal agencies' tools including uniform risk disclosure, consensus-based building codes, updated disaster definitions, and improved floodplain management to adequately reflect the risk of climate change for communities, homeowners, and renters.

5 With every disaster, governments at all levels must use post-disaster funding with a focus on climate and resilience, as well as equity. This post-disaster spending represents the nation's biggest ongoing infrastructure project and should be treated as such.

6 The federal government must work with federal agencies to address inequities in disaster relief funding for the poor and marginalized and direct additional assistance to these communities.

7 Natural solutions should be emphasized and prioritized at every level of government. The federal government must invest in natural infrastructure, focusing on existing at-risk ecosystems like coasts and marshes that can help mitigate the risk of disasters.

8 The federal government must work with state and local governments to develop better land use planning requirements that avoid new development in high-risk areas like the WUI or high flood risk areas. The federal government must encourage cities and states to be both proactive and realistic in their approaches to planning, development, and hazard mitigation.

9 The federal government must invest in programs that support crop-diverse farms, community water resilience, and water conservation and efficiency.

10 We need to reframe our thinking on climate to consider it an opportunity rather than a threat. Our environment and our economy are connected. There is no binary choice—we can create jobs, update our aging infrastructure, grow our domestic manufacturing, address some historic inequities, and face the climate crisis all at the same time.

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Conclusion

This year has been the most consequential yet in our struggle against the forces of climate change. This has been top of mind for me not just because Oregon suffered from two summers of consecutive record-breaking heatwaves and wildfires. It is because, across the country and around the world, the record-breaking fires, floods, droughts, storms, extreme weather, and disease spread allow for no other conclusion.

This was the backdrop for the IPCC report declaring unequivocally that these disasters relate directly to climate change and that they are the new normal. That in mind, we must drastically reduce our emissions and improve our resilience. As a prelude to that massive effort, let's make better use of disaster response and resources.

I have been working on these issues for my entire career: fighting for emissions and pollution reductions, resilience, strategic land use, better transportation, and sustainable agriculture. After many years and limited success, I am convinced there must be a new, comprehensive approach on a much more dramatic scale. We can no longer afford to nibble around the edges. We need bold, transformative action to meet the scale of the problem itself.

We can start with the basics: stop allowing new development in risky places, like the WUI or areas with high flood risk. We must deal with repeat loss properties in a more thoughtful way, including paying to remove those properties to ensure that vulnerable people aren't stranded in high-risk areas. We must enhance protections in the Stafford Act and help FEMA address the changing realities of today's climate. We must empower cities and states to be both proactive and realistic in their approaches to planning, development, and hazard mitigation. We must radically alter our approaches to agriculture and deforestation so that we stop making things worse. We should harness the forces of nature to heal the land and reduce carbon. Above all, we must mitigate climate change with an emphasis on equity.

We can no longer afford to send mixed messages about the severity of this crisis for people's everyday lives. Indeed, putting off these much-needed policy changes will only delay the inevitable and make the adjustments more difficult as we reap the consequences of decades of inaction and denial. The only realistic option is to act now. We have given ourselves no other choice.

I have spent my career demanding these changes—and I will continue to do the work to see them through. Right now, I am leading legislation to address repeatedly flooded communities, the Repeatedly Flooded Communities Preparation Act (H.R. 1797), and drafting legislation to amend the Stafford Act to better equip FEMA to address climate change. I am also a cosponsor of dozens of pieces of legislation, from the Civilian Climate Corps Jobs and Justice Act (H.R 2670) to the Environmental Justice for All Act (H.R. 2021), that will help us accomplish these objectives. I remain more committed, and more hopeful, than ever. We are in a watershed moment of public awareness and commitment to these issues, and we have the tools to solve them. Together, we can achieve the massive cultural and political re-set needed to meet this moment. Our future depends on it.

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We can no longer afford to send mixed messages about the severity of this crisis for people’s everyday lives. Indeed, putting off these much-needed policy changes will only delay the inevitable and make the adjustments more difficult as we reap the consequences of decades of inaction and denial. The only realistic option is to act now.

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