

## **Testimony of Catherine Coleman Flowers**

To the Senate Committee on Agriculture, Nutrition, and Forestry  
Subcommittee on Rural Development and Energy

July 19, 2023

Thank you, Chairperson Welch, Ranking Member Tuberville, and all the members of the Subcommittee for the opportunity to testify. My name is Catherine Coleman Flowers. I serve as the founding director of the Center for Rural Enterprise and Environmental Justice in Huntsville, Alabama. I also serve as a practitioner in residence at Duke University, a member of the board of advisers for the Center for Earth Ethics at Union Theological Seminary, as well as the boards of the Natural Resource Defense Council, the Climate Reality Project, and the American Geophysical Union. In 2020 I was awarded a MacArthur Fellowship in Environmental Health, and I authored the book entitled *Waste: One Woman's Fight Against America's Dirty Secret*.

### **Rural Households Across America Lack Effective Sanitation**

In my book I uncovered the extent to which rural America has been denied access to sustainable and resilient wastewater infrastructure. Too many people in this country lack safe, reliably functioning sanitation. According to the Census Bureau's American Housing Survey, 18 percent of all U.S. households – about 1 in 5 homes – are not able to send their sewage to be treated by a centralized wastewater system.<sup>1</sup> About 22 million households use a decentralized wastewater system such as a septic tank or cesspool, 180,000 households use rudimentary sewage disposal approaches like outhouses and chemical toilets, and 35,000 households have no form of wastewater treatment at all.<sup>2</sup>

For these families, wastewater treatment is unreliable at best and a health crisis at worst. Decentralized forms of wastewater treatment are more likely to break down and fail. This problem is acute in many regions of the country.

For example, my home of Lowndes County in Alabama's Black Belt is a rural area where homes must rely on on-site sanitation, yet the region's impermeable soil and rising water tables are not

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<sup>1</sup> U.S. Environmental Protection Agency, Office of Water, *Report to Congress on the Prevalence Throughout the U.S. of Low- and Moderate-Income Households Without Access to a Treatment Works and the Use by States of Assistance Under Section 603(c)(12) of the Federal Water Pollution Control Act* (July 2021), 4, <https://www.epa.gov/system/files/documents/2022-01/low-mod-income-without-treatment-report-to-congress.pdf>.

<sup>2</sup> *Id.* at 6, Table 2.

suitable for conventional septic systems.<sup>3</sup> Treatment systems that are engineered to function in low permeable soils are available, but they are expensive.<sup>4</sup> They also involve mechanical technologies with components that eventually wear down or malfunction, requiring costly repairs. As a result, many of our region’s residents are simply unable to afford any functioning means of waste treatment. It is all too common for homes to have either malfunctioning septic systems that cause human waste to back up into dwellings or “straight pipes” discharging untreated waste into their yards. When the Administrator of the Environmental Protection Agency (EPA), Michael Regan, visited this area in March 2022, he called the situation “unacceptable.”<sup>5</sup>

Wastewater treatment failures have also been a problem in other regions such as Hawaii, where 88,000 aging cesspools are leaking 53 million gallons of untreated waste into streams, oceans, and drinking water every day, leading to contamination and illness.<sup>6</sup> Centreville, Illinois and Mount Vernon, New York have been facing their own well-publicized struggles with sanitation as well. Across Appalachia, wastewater-contaminated streams flow past people’s homes.<sup>7</sup> In Puerto Rico, communities struggle to rebuild wastewater and septic systems damaged by hurricanes.<sup>8</sup> Colonias and Tribal nations in the Southwest disproportionately lack indoor plumbing.<sup>9</sup> Sanitation systems are absent or failing in small, rural communities from California’s Central Valley to Native Villages in Alaska.

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<sup>3</sup> Jiajie He et al., *Assessing the Status of Onsite Wastewater Treatment Systems in the Alabama Black Belt Soil Area*, 28 *Env’tl Engineering Sci.* 693, 697-99 (2011), <https://www.liebertpub.com/doi/10.1089/ees.2011.0047>.

<sup>4</sup> See Maxwell Izenberg et al., *Nocturnal Convenience: The Problem of Securing Universal Sanitation Access in Alabama’s Black Belt*, 6 *Env’tl Justice* 200, 202 (Dec. 2013), <https://www.liebertpub.com/doi/10.1089/env.2013.0036>.

<sup>5</sup> See Dennis Pillion, “This Is Unacceptable: EPA Chief Visits Failing Sewage Systems in Alabama Black Belt,” *AL.com*, Mar. 5, 2022, <https://www.al.com/news/2022/03/this-is-unacceptable-epa-chief-visits-failing-sewage-systems-in-alabama-black-belt.html>.

<sup>6</sup> Hawaii Department of Health, *Cesspools in Hawai’i*, <https://health.hawaii.gov/wastewater/home/cesspools/>.

<sup>7</sup> See University of North Carolina Environmental Finance Center and Appalachian Regional Commission, *Drinking Water and Wastewater Infrastructure in Appalachia* (2005), <https://www.arc.gov/wp-content/uploads/2020/06/DrinkingWaterandWastewaterInfrastructure.pdf>.

<sup>8</sup> See FEMA, “FEMA Approves More than \$100 Million for Improvements to PRASA Sewer Systems,” Mar. 10, 2022, <https://www.fema.gov/press-release/20220310/fema-approves-more-100-million-improvements-prasa-sewer-systems> (announcing grant funds to repair wastewater system damage that still had not been repaired five years after Hurricane Maria).

<sup>9</sup> Dig Deep & U.S. Water Alliance, *Closing the Water Access Gap in the United States* (2019), [https://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States\\_DIGITAL.pdf](https://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States_DIGITAL.pdf).

Climate change is making these problems worse across the country. Heavy precipitation events and extreme storms are growing more frequent, and our infrastructure is struggling to keep up. Higher temperatures increased heavy precipitation events, and sea level rise affect the performance of decentralized wastewater systems by reducing the volume of unsaturated soil and oxygen available for treatment, which may result in system failure.<sup>10</sup> This is prevalent in Florida. Moreover, the impacts of climate on our water systems are not limited to sanitation. Right now, in Vermont, towns across the state have lost access to safe drinking water due to intense flooding. Boil water and do not drink water notices have been issued due to water system failure, resident complaints about water quality, and pump control failure.<sup>11</sup>

Failing water and wastewater systems put communities' health at risk every day. Encountering unsafe water and untreated waste increases the risk of gastrointestinal illnesses, tropical diseases, antimicrobial resistance, anemia, miscarriage, and preterm births.<sup>12</sup> Untreated or inadequately treated sewage can contaminate the groundwater used for drinking water wells, creating an elevated risk of waterborne disease.<sup>13</sup>

These health risks cause serious economic harm. It is extremely difficult to attract businesses to a community that lacks adequate wastewater treatment.<sup>14</sup> More fundamentally, inadequate on-site sanitation degrades people's quality of life and takes a toll on mental health.<sup>15</sup> The smell from sewage on the ground can be a near-constant nuisance. Some residents dread the sound of rainfall because it means wastewater could start to back up in their homes. Others will not let children play in their yards because of the risk of exposure to human waste. These conditions

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<sup>10</sup> Jennifer A. Cooper et al., "Hell and High Water: Diminished Septic System Performance in Coastal Regions Due to Climate Change," PLoS ONE (2016), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0162104>.

<sup>11</sup> Vermont Agency of Natural Resources, Storm-Related Boil Water and Do Not Drink List, <https://anrweb.vt.gov/DEC/DWGWP/license.aspx?Report=Boil>.

<sup>12</sup> E.g., George McGraw, *Draining: The Economic Impact of America's Hidden Water Crisis* (2022), 36, <https://www.digdeep.org/draining>; Global Communities, *Closing the U.S. Sanitation Equity Gap: Exploring Opportunities to Learn from the Global Sanitation Sector Experience* (Sept. 2021), 3, [https://globalcommunities.org/wp-content/uploads/2022/01/GC\\_Tech\\_Brief\\_US\\_Sanitation\\_Equity\\_Landscape\\_Analysis\\_Final\\_Sept2021.pdf](https://globalcommunities.org/wp-content/uploads/2022/01/GC_Tech_Brief_US_Sanitation_Equity_Landscape_Analysis_Final_Sept2021.pdf);

ACRE, *Flushed and Forgotten*, at 6; Megan L. McKenna et al., *Human Intestinal Parasite Burden and Poor Sanitation in Rural Alabama*, *Am. J. of Tropical Medicine & Hygiene* (Sept. 2017), <https://pubmed.ncbi.nlm.nih.gov/29016326/>.

<sup>13</sup> U.S. Environmental Protection Agency, Septic System Impacts on Water Sources, <https://www.epa.gov/septic/septic-system-impacts-water-sources>.

<sup>14</sup> See Alexis Okeowo, *The Heavy Toll of the Black Belt's Wastewater Crisis*, *New Yorker* (Nov. 30, 2020), <https://www.newyorker.com/magazine/2020/11/30/the-heavy-toll-of-the-black-belts-wastewater-crisis>.

<sup>15</sup> ACRE, *Flushed and Forgotten*, at 6.

undermine human dignity and cause deep psychological harm. It is a disgrace that entire communities have endured this injustice for decades.

Yet we must also recognize that these burdens are not borne equally by all kinds of communities. Low-income households are more likely than others to lack access to a centralized treatment system.<sup>16</sup> Nationwide, inadequate and failing sanitation systems disproportionately impact rural areas.<sup>17</sup> In 2019, one out of every eight homes of Native Americans and Alaska Natives lacked access to adequate sanitation.<sup>18</sup>

Data gaps make it difficult to understand the true extent of the problem and the people that it affects. The EPA has stated that existing information sources do not provide the data necessary to characterize the use of decentralized systems nationally, or to allow for estimates at the state and local levels.<sup>19</sup> For example, the American Housing Survey's methodology uses a small sample size that is not representative of regional variations, and it excludes Puerto Rico, where about 40 percent of homes are connected to substandard or failing septic systems.<sup>20</sup>

Despite these gaps, the EPA has recognized that rural, minority, and economically disadvantaged communities struggle to address these impacts of inadequate sanitation given their limited financial capacity.<sup>21</sup>

We have the opportunity to right these wrongs. Our rural communities should not be left to their own devices as they struggle to cope with the lack of investment in sustainable infrastructure that goes back decades and is being exacerbated by the climate crisis. We can make America a

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<sup>16</sup> EPA, *Report to Congress on the Prevalence Throughout the U.S. of Low- and Moderate-Income Households Without Access to a Treatment Works*, at 4.

<sup>17</sup> Alabama Center for Rural Enterprise (ACRE) et al., *Flushed and Forgotten: Sanitation and Wastewater in Rural Communities in the United States* (May 2019), 18, <https://www.humanrightscolumbia.org/sites/default/files/Flushed%20and%20Forgotten%20-%20FINAL%20%281%29.pdf>; Dig Deep & U.S. Water Alliance, *Closing the Water Access Gap in the United States* (2019), [https://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States\\_DIGITAL.pdf](https://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States_DIGITAL.pdf).

<sup>18</sup> Indian Health Service, *Annual Report to the Congress of the United States on Sanitation Deficiency Levels for Indian Homes and Communities: Fiscal Year 2019*, 7, [https://www.ihs.gov/sites/newsroom/themes/responsive2017/display\\_objects/documents/FY\\_2019\\_RTC\\_Sanitation\\_Deficiencies\\_Report.pdf](https://www.ihs.gov/sites/newsroom/themes/responsive2017/display_objects/documents/FY_2019_RTC_Sanitation_Deficiencies_Report.pdf).

<sup>19</sup> EPA, *Report to Congress on the Prevalence Throughout the U.S. of Low- and Moderate-Income Households Without Access to a Treatment Works*, at 5, 8.

<sup>20</sup> *Id.* at 5, 11-12.

<sup>21</sup> U.S. Environmental Protection Agency, *Financing Decentralized Wastewater Treatment Systems: Pathways to Success with the Clean Water State Revolving Fund Program* (January 2022), 4, <https://www.epa.gov/system/files/documents/2022-02/financing-dwts.pdf>.

model of ingenuity where we have clean water, safe sanitation, and resilient infrastructure for everyone.

### **Current Assistance for On-Site Sanitation Should be Expanded and Improved**

The Farm Bill, which this Committee is in the process of developing for 2023, includes several USDA programs that can help provide people with affordable, reliable sanitation systems. One of those programs is the Rural Decentralized Water Systems Program.<sup>22</sup> This program helps low- and moderate-income households in rural areas finance the costs of household water wells and decentralized wastewater systems. Through the program, USDA distributes grants to nonprofit entities and Tribes to establish revolving funds that provide loans and sub-grants to households. Recipients may use the funds to construct, refurbish, rehabilitate, or replace individually owned water well systems and wastewater systems.

This program has the potential to make progress toward rural sanitation equity, but it is currently underfunded and not reaching the people who need assistance the most. Although it is currently authorized at \$20 million per year, it received only \$5 million in Fiscal Year 2023.<sup>23</sup> Significantly more funding is needed given the scope of the rural sanitation equity and justice problem across the country.

Senators Booker and Capito have introduced S. 1233, a bill to reauthorize the program and make it work better (the Rural Decentralized Water Systems Reauthorization Act.<sup>24</sup> This bill is a welcome first step toward addressing critical rural sanitation needs across America, providing increased funding, higher income eligibility for loans, and recognition of the legitimate need for warranties on sanitation systems. S. 1233 should be included in this year's Farm Bill with several key improvements. These are:

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<sup>22</sup> Consolidated Farm and Rural Development Act § 306E; 7 C.F.R. Part 1776; U.S. Department of Agriculture, Rural Decentralized Water Systems Grant Program, <https://www.rd.usda.gov/programs-services/water-environmental-programs/rural-decentralized-water-systems-grant-program>.

<sup>23</sup> FY 23 Omnibus Bill Explanatory Statement: Division A – Agriculture, 37, <https://www.appropriations.senate.gov/imo/media/doc/Division%20A%20-%20Agriculture%20Statement%20FY23.pdf>.

<sup>24</sup> S. 1233, A bill to amend the Consolidated Farm and Rural Development Act to modify provisions relating to rural decentralized water systems grants, <https://www.congress.gov/bill/118th-congress/senate-bill/1233>.

1. Considering the significant unmet needs for working sanitation across the country, Congress should increase the program's annual authorization level to \$25 million in Fiscal Year 2024, and \$50 million in each of the following years.
2. While the bill allows funds to be used to cover the cost of decentralized wastewater system warranties of at least 5 years, Congress should go further. When advanced treatment systems fail, manufacturers, contractors, and government entities can blame residents for failures, absolving those who supplied and installed the system of all responsibility. Creating an adequate and fair system of accountability through a warranty requirement is vital to ensure working sanitation for participating households. Congress should require that all sanitation systems funded through this program carry a manufacturers and installers' warranty for a minimum of 10 years. It is critical that systems installed in peoples' homes – often in remote locations – be reliable.
3. While S. 1233 would increase the household income eligibility for loans from this program to 100% of median household income (up from 60% in current law), Congress should also consider increasing the income eligibility threshold to at least 80% for grants as well. Families earning 80% of median household income are still struggling and may be unable to take on the repayment responsibility of a new loan.<sup>25</sup>
4. The bill raises the dollar limit on grants and loans made through the program from \$15,000 to \$20,000 each. However, in many locations this is not enough to support the infrastructure required for public health and safety. In common contexts across the country, where tight soils, rising water tables, and other environmental challenges preclude the use of conventional septic tanks, more costly on-site treatment systems are needed to provide effective sanitation. These necessary engineered systems can cost up to \$50,000.<sup>26</sup> Congress should raise the dollar limit for sanitation systems to \$35,000 for sites where soil or water conditions rule out the installation of conventional septic systems.

## **Further Efforts Needed to Achieve Sanitation Equity**

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<sup>25</sup> See Rural Health Information Hub, Median Household Income, 2021 – Alabama, <https://www.ruralhealthinfo.org/charts/58?state=AL>, showing that the 2021 median non-metropolitan household income in Alabama was \$46,000. 80% of this income level would be \$36,800, an income leaving little for repayment of an interest-bearing loan for a new sanitation system.

<sup>26</sup> See Premier Tech, How Much Does an Ecoflo Septic System Cost?, <https://www.premiertechaqua.com/en-us/wastewater/ecoflo-septic-system-cost>.



In addition to the expansion and improvement of this small USDA program, the lack of effective sanitation is such a wide-spread and persistent problem for millions of Americans that a wider response is necessary. We need new information, new strategies, and new technology to fully make this essential service a reality for all households, including the most economically challenged.

To secure better information to support sanitation solutions, Congress should consider directing the USDA to compile and regularly update the status of sanitation at unsewered households nationwide. In most states, there is no central recordkeeping of the presence and effectiveness of on-site sanitation systems. USDA compiles data on an enormous range of topics of importance to Rural America. The Indian Health Service compiles such information concerning tribal communities in an annual report to Congress.<sup>27</sup> A truly nationwide census and condition assessment of residential on-site sanitation, with regular updates, would be a huge step forward in the search for solutions.

Secondly, where unsewered households can be served by an extension of municipal sewers, we need new strategies to overcome the barriers that have blocked their access. The Rural Utilities Service should prioritize wastewater projects that extend sewer service primarily to low- and moderate-income households with failing or non-existent on-site systems. While such projects may be expensive, effective on-site systems can also be expensive, and the cost and indignity of a household without effective sanitation is the most expensive option of all. A set-aside within the Water and Waste Disposal Loans and Grants program, like the Section 306C program directing assistance to Colonias, Tribal lands, and Alaska native communities, could serve this purpose.

Third, Congress should fund research into new or modified technologies that can provide more reliable and affordable on-site waste treatment. Colleges and universities with a demonstrated commitment to underserved rural areas, such as Historically Black Colleges and Universities, could be enlisted as research partners and project managers. Both EPA and USDA have extensive research programs on a wide range of topics and technologies, yet this most basic of human needs remains absent from the federal research portfolio. Ironically, I believe that NASA has done more research on this topic than either of these two major departments. Congress should remedy this oversight in the upcoming Farm Bill.

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<sup>27</sup> Indian Health Service, Reports to Congress, <https://www.ihs.gov/newsroom/reportstocongress/>.

I thank you for this opportunity to speak before you today. It is an honor, and I look forward to continuing the conversation about environmental justice and functioning wastewater systems for all people.