



POLICY BRIEF: HEALTH IMPLICATIONS OF ARPA FUNDING DEDICATED TO ON-SITE WASTEWATER SYSTEMS IN THE BLACK BELT AREA OF ALABAMA

A number of Alabama residents, particularly in the Black Belt area, are unable to connect to centralized water and sewage utilities and instead rely on on-site sanitation systems, or septic tanks. These systems are costly, particularly in comparison to the household income of the area, and often fail due to the unique geological structure of the region (He et al., 2011). Homeowners who are unable to afford a proper on-site sanitation system may resort to “straight piping” instead, dispensing raw sewage into nearby fields, ditches, or waterways (Loveless & Corcelli, 2015).

The Black Belt has a uniquely structured geologic profile that results in a rich, dark soil high in nitrates which gave the region its name. The unconfined aquifer, or layer of soil above the first layer of clay, is only a few feet deep and much more shallow than in other areas of the state. Traditional septic tanks are buried just below the ground level which results in the tanks potentially being buried in a layer of montmorillonite clay rather than soil.

This poses two issues. This type of clay is hydrophilic, meaning that any moisture leaving the system via drainage fields is not able to be naturally filtered the way soil composed of minerals and microorganisms is. Additionally, the clay expands and contracts in extreme temperatures found in Alabama which can cause the concrete septic tanks to crack and expose extreme amounts of waste into the groundwater, known as interaquifer leakage. Consequently, the area requires an engineered or “mounded” sanitation system that artificially creates a larger unconfined aquifer of sand and soil on a property, but the cost is upwards of 5x that of a traditional septic system.

Ineffective sanitation infrastructure poses a number of health and environmental risks. Common pathogens related to groundwater contamination include but are not limited to shigella, hepatitis A, norovirus, giardia, and salmonella (EPA, 2015). Additionally, parasites like hookworm have historically been present in the area due to poor sanitation (McKenna et al., 2017).

While many Alabama residents struggle to access adequate sanitation, the problem is especially severe in the Black Belt counties of Dallas, Perry, Sumter, and Wilcox. As some of the poorest areas in the state, the cost of an effective sanitation system is often unfeasible. However, under state law it is the financial responsibility of the homeowner to install and maintain a state-permitted on-site sanitation system and risk fines, arrest, and a potential lien on their home for not doing so (Alabama Code § 11-68) It is estimated that tens of thousands of homes in the Black Belt area that have outdated, ineffective, or substandard on-site sanitation systems.

Currently, the Alabama Department of Environmental Management (ADEM) is the facilitator of all government funding for sanitation projects in the state. However, ADEM does not offer a mechanism to provide financial assistance for on-site systems to homeowners or non-municipal entities such as non-profit organizations.



On Tuesday, March 7th, Governor Ivey called for a special session of the Alabama legislature to distribute the remaining \$1.06 billion in federal funding granted by the American Rescue Plan Act, a portion of which is expected to go toward sanitation infrastructure in the Black Belt. ARPA funds could be highlighted as a way to assist with on-site sanitation repairs via grants distributed through ADEM to begin tackling this problem.

Other facts of note:

- According to one survey, 90% of land in the Black Belt is not suited for conventional on-site sanitation systems (He et al, 2011).
- The average income in Wilcox county is \$19,231.8 (US Census, 2021).
- A survey conducted in Wilcox County showed that 90% of unsewered homes had an unpermitted sewage system, 60% of homes had a visible straight pipe, and 33% of homes had a buried straight pipe or other unpermitted sanitation systems (He et al, 2011).
- Researchers estimate that upwards of 550,000 gallons of raw sewage are being put in the watershed each day due to inefficient sanitation (Walton, 2017).
- One study estimated that groundwater contamination from failing septic systems could affect up to 340,000 low-income people in rural Alabama, placing them at an elevated risk of disease (Wedgeworth & Brown, 2013).

Alabama Code 1978, § 11-68

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