

Assisting our Black Belt Neighbors; Third World Problems in Our Backyard

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In our own backyard, right here in Alabama, in an area known as the Black Belt, for its geology, is a dire health and sanitation issue. The geology that gives the area its name, also contributes to the problem of inadequate sanitation. Various sources estimate the population of the Alabama Black Belt to comprise 7-12% of Alabama's total population as of 2010. However, due to the sparse and sprawling nature of this population, only about 20% of residents are able to connect to municipal sewer systems. Many of those systems are rife with problems as well with flooding and spillage during heavy rains being reported. According to [a UN report](#) published in 2011, the "Alabama Department of Public Health estimates that the number of households in Lowndes County (within the Black Belt) with inadequate or no septic systems range from 40 to 90 per cent; it has reported that 50 per cent of the conventional, on-site septic systems are currently failing or are expected to fail in the future." "A United Nations official who tours the globe investigating extreme poverty said that areas of Alabama's Black Belt are suffering the most dire sewage disposal crisis of any place he has visited in a developed country."

Indeed, the American Society of Civil Engineers (ASCE) estimate that overall 65% of Alabama's wastewater collection systems are at the end of useful life. "Estimates for the waiting repair and maintenance known to be required on existing stormwater and wastewater systems across the state is about \$6 to \$10 billion. A recent survey reports that more than 1 in 3 utility providers statewide have rate structures inadequate to cover their operating expenses, making it impossible to replace aging infrastructure . . ." In light of these hurdles, the residents of the Black Belt are likely to continue to be left without a solution. For the 80% of Black Belt households that don't have the option to connect to the municipal sewer system, they must provide for their own waste disposal but the ASCE estimates 25% of the septic systems statewide in Alabama are failing and that percentage is higher in the Black Belt. Even attaining a traditional septic system is not a simple thing to accomplish for Black Belt residents due to the soil characteristics of the area. Traditional septic systems, which cost approximately \$3000 are often not suitable for this area. Specialized septic systems that can cost \$10,000 - \$30,000 may be required and are cost-prohibitive for most residents. Hence, a large percentage of the population is left no viable option other than to "pipe" their wastewater and sewage a short distance from their home into the open. Others that do have traditional septic systems find that recurrent flooding causes sewage to back up into their homes. "Kevin White, an environmental engineering professor at the University of South Alabama, estimates that about 15 percent of people in the Black Belt region are on straight pipes." White adds that a third of the septic systems in the same area are failing resulting in above ground exposure of raw sewage. These conditions obviously produce a host of health issues. To further compound the hardship these Alabamians face, because it is the law that proper sewage be maintained and the burden is on the homeowner, many have been fined and even arrested for violations.

Some of those health issues these conditions create were highlighted in a study by the Baylor College of Tropical Medicine published in the November 2017 *American Journal of Tropical Medicine and Hygiene* that demonstrated that among 24 households surveyed, 42.4% had raw sewage in their home, and of 55 individuals tested, 34.5% were positive for hookworm. Previously hookworm was thought to have been eradicated between the 1950's and the 1980's.

Catherine Coleman Flowers of the Alabama Center for Rural Enterprise has implored experts and agencies for assistance for local residents, calling for a wastewater challenge and requesting “entities from across the country and around the world get involved in the effort.” “Flowers estimates that 70% of households in the area either “straight pipe” their waste directly onto open ground, or have defective septic tanks incapable of dealing with heavy rains.”

The problem of poverty and lack of basic services has been highlighted by national and international media, and has garnered the attention of Senator Cory Booker (D-NJ) and the United Nations, with stories being carried on Al Jazeera America, The Guardian, the Huffington Post, NPR, and others. It would be a grand day if they could report that UAB had taken on and solved this challenge facing our neighbors in the Black Belt.

Ideally the outcome of our efforts would provide for innovative, technologically advanced, environmentally sound, economical and cost-effective household unit solutions. This would create opportunities for improved health and sanitation solutions for numerous households across the U.S. and indeed the world. While the UAB Grand Challenge cites health disparities in the Black Belt as a potential challenge topic, we cannot fully address issues of health and disease without these citizens being assured of adequate sanitation. Any solution created would have tremendous effect globally. The impact and the gravity of the need worldwide is evidenced by the *UNICEF Water, Sanitation, and Hygiene Report* which noted that in 2015, 2.3 billion people still lacked basic sanitation service and among them, almost 892 million people still practised (sic) open defecation worldwide. They added that across the globe, “Every day, over 800 children die from preventable diseases caused by poor water, and a lack of sanitation and hygiene.” As we are keenly aware, some of these who are sadly lacking basic services are in our own backyard. We would also be helping our fellow citizens throughout our country. According to the U.S. Census Bureau, “nearly half a million households in the United States lack the basic dignity of hot and cold running water, a bathtub or shower, or a working flush toilet.”

List of Potential Team Members:

Engineers, civil engineers, public health advocates from UAB and the community yet to be determined. I don't have direct knowledge or contact with the individuals currently but hope to enlist assistance and team members through the UAB Grand Challenge team and its contacts.

Professor Joe Brown is originally from the Black Belt and teaches environmental engineering at Georgia Tech and has attempted to work on a solution to this issue.

Kevin White, Professor of Environmental Engineering, University of South Alabama has studied the extent/prevalence of the sanitation issues.

Baylor College of Tropical Medicine

The Environmental Protection Agency

References

Pilkington, Ed. 2017, December 15). A journey through a land of extreme poverty: welcome to America, *The Guardian*, Retrieved from <https://www.theguardian.com/society/2017/dec/15/america-extreme-poverty-un-special-rapporteur>

American Society of Civil Engineers, (2017). *Alabama 2015 Report*, 2017 Infrastructure Report Card, Retrieved from <https://www.infrastructurereportcard.org/state-item/alabama/>

Cleek, Ashley. (2015, June 3rd), Filthy water and shoddy sewers plague poor Black Belt counties, *AlJazeera America*, Retrieved from <http://america.aljazeera.com/articles/2015/6/3/filthy-water-and-poor-sewers-plague-poor-black-belt-counties.html>

Black Belt parasite study sparks stronger calls for better wastewater methods, (2017, September 8th), *WSFA 12 News*, Retrieved from <http://www.wsfa.com/story/36323174/black-belt-parasite-study-sparks-stronger-calls-for-better-wastewater-methods>

Sheets, Connor, (2017, December 8th), UN Poverty official touring Alabama's Black Belt; "I Haven't seen this" in the First World, *AL.com*, Retrieved from http://www.al.com/news/index.ssf/2017/12/un_poverty_official_touring_al.html

Smith, Catharine, (2017, December 15th), Meet the Americans with Open Sewers in Their Yard, *Huffington Post*, Retrieved from https://www.huffingtonpost.com/entry/sanitation-open-sewers-black-belt_us_5a33baf5e4b040881be99da5

Whitehead, Nadia, (2017, September 12), The U.S. Thought it was Rid of Hookworm. Wrong., *NPR*, Retrieved from <https://www.npr.org/sections/goatsandsoda/2017/09/12/550387650/the-u-s-thought-it-was-rid-of-hookworm-wrong>

In 2015 two out of five used safely managed sanitation services, (Updated 2018, March), Sanitation, Current Status and Progress, *UNICEF*, Retrieved from <https://data.unicef.org/topic/water-and-sanitation/sanitation/>

Tavernise, Sabrina, (2016, September 26), A Toilet, but No Proper Plumbing: A Reality in 500,000 U.S. Households, *The New York Times*, Retrieved from <https://www.nytimes.com/2016/09/27/health/plumbing-united-states-poverty.html>