



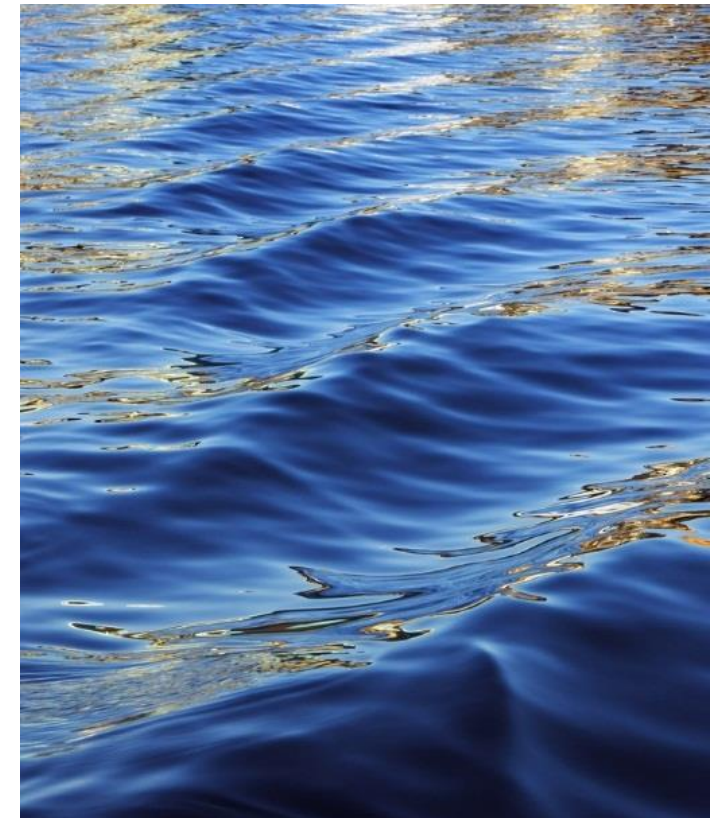
July 25, 2023



Connecting the DOTS ...

One Health and Environmental Justice

Case Study: Black Belt



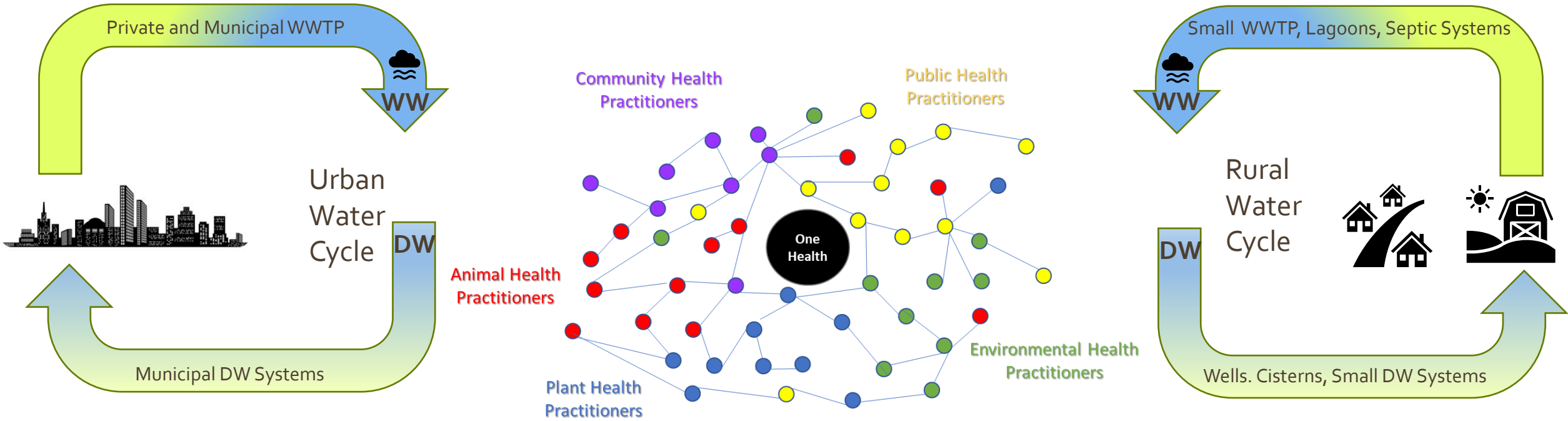
Tonya Nichols, PhD
One Health Coordinator
CESER/ORD

Clean water is essential to the health of people, animals, and ecosystems.



Environmental Justice: the right to clean water for all

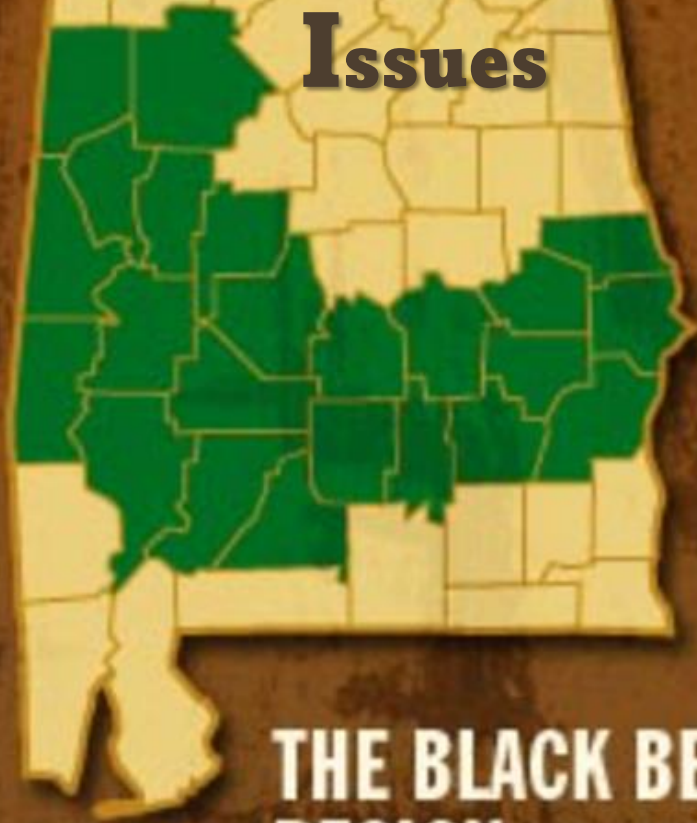
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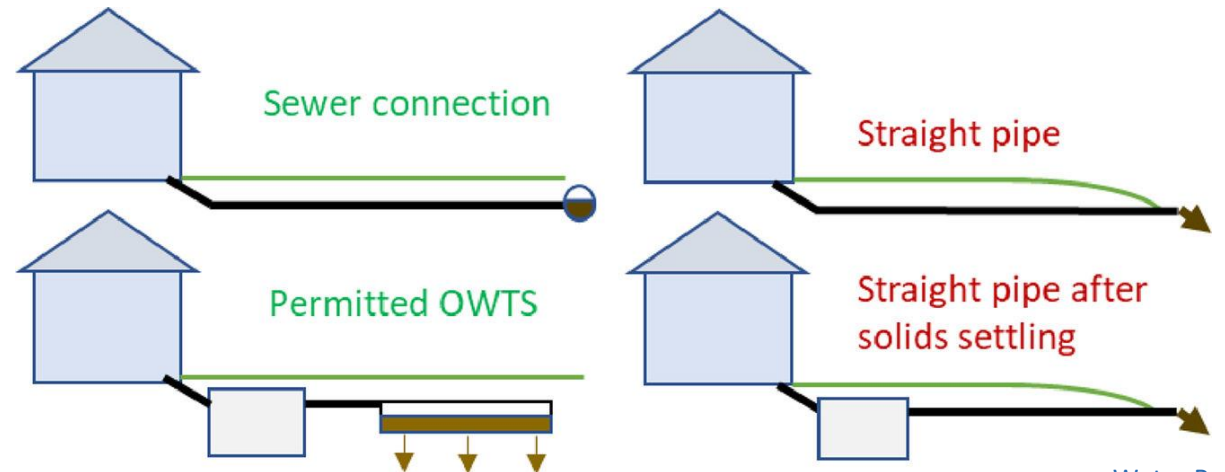
Protection of watersheds, maintenance of critical water infrastructure and equitable access to clean water requires all of us working together.

CASE STUDY

Rural Wastewater Issues



**THE BLACK BELT
REGION**

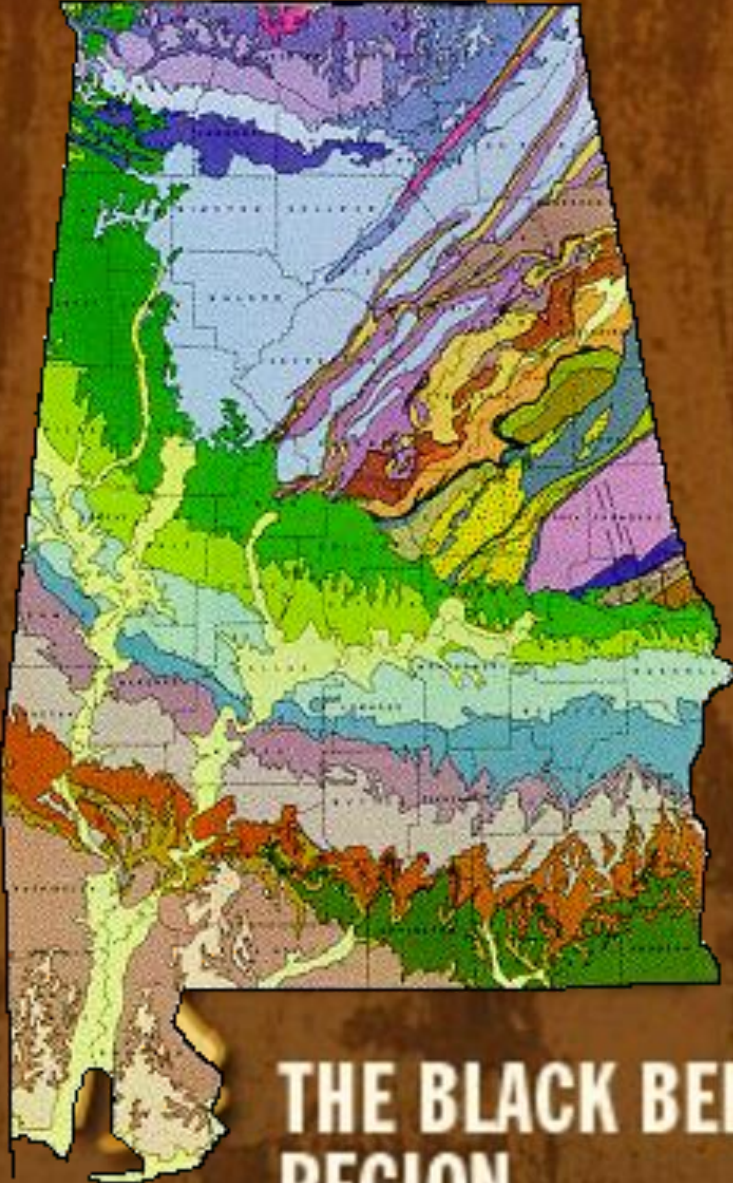


[Water Research](#)
Volume 190, 15 February 2021, 116647

A lack of sewer systems, failed septic systems, unsuitable soil/geology, and poverty can lead households to resort to discharging raw sewage onto the ground through what are commonly called “straight pipes.”



CASE STUDY



**THE BLACK BELT
REGION**

Blackbelt clay prairie soils inherently have drainage issues (e.g., septic drain fields don't filter (or perc) which results in raw sewage accumulating on top of soil).

Scenario: Failed septic system in Russell County. Local contractor recommends a "mound system" at a price tag of \$26,000. Lifespan of the constructed mound system is 5-19 years.



Swimming and
Fishing Pond

Raw Sewage

CASE STUDY



THE BLACK BELT REGION

Alabama ranks fourth among states in terms of species diversity and is first among states east of the Mississippi River.



Concerns:

Impaired Animal and Environmental Health and Accelerated Biodiversity Loss





Perry County
 #1 Poorest in State
 #3 Poorest in the US

- Pop – 8K
- Black – 70%
- Hispanic – 2%
- Veteran – <1%
- Disabled – 16%
- Poverty – 35%

Russell County

- Pop – 59K
- Black – 44%
- Hispanic – 6%
- Veteran – 7%
- Disabled – 16%
- Poverty – 22%

Sumter County
 #3 Poorest in State
 #15 Poorest in the US

- Pop – 12K
- Black – 70%
- Hispanic – 2%
- Veteran – <1%
- Disabled – 16%
- Poverty – 35%

Montgomery County

- Pop – 226K
- Black – 61%
- Hispanic – 4%
- Veteran – 16%
- Disabled – 12%
- Poverty – 22%

Lowndes County
 #8 Poorest in State
 #108 Poorest in the US

- Pop – 9K
- Black – 70%
- Hispanic – <1%
- Veteran – 21%
- Disabled – 12%
- Poverty – 29%

Poarch Creek Indian Reservation
 Federally-recognized Tribe

Blackbelt counties represent approx. 11% state population



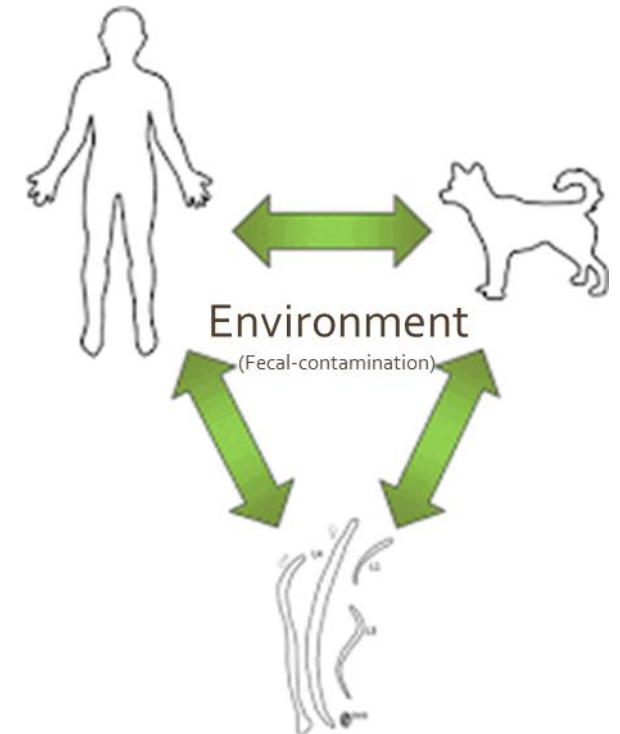
[Am J Trop Med Hyg.](#) 2017 Nov 8; 97(5): 1623–1628.
 Published online 2017 Sep 5. doi: [10.4269/ajtmh.17-0396](#)

PMID: [PMC5817782](#)
 PMID: [29016326](#)

Human Intestinal Parasite Burden and Poor Sanitation in Rural Alabama

[Megan L. McKenna](#),^{1,†} [Shannon McAtee](#),^{1,†} [Patricia E. Bryan](#),¹ [Rebecca Jeun](#),¹ [Tabitha Ward](#),¹ [Jacob Kraus](#),¹
[Maria E. Bottazzi](#),¹ [Peter J. Hotez](#),¹ [Catherine C. Flowers](#),² and [Rojelio Mejia](#)^{1,*}

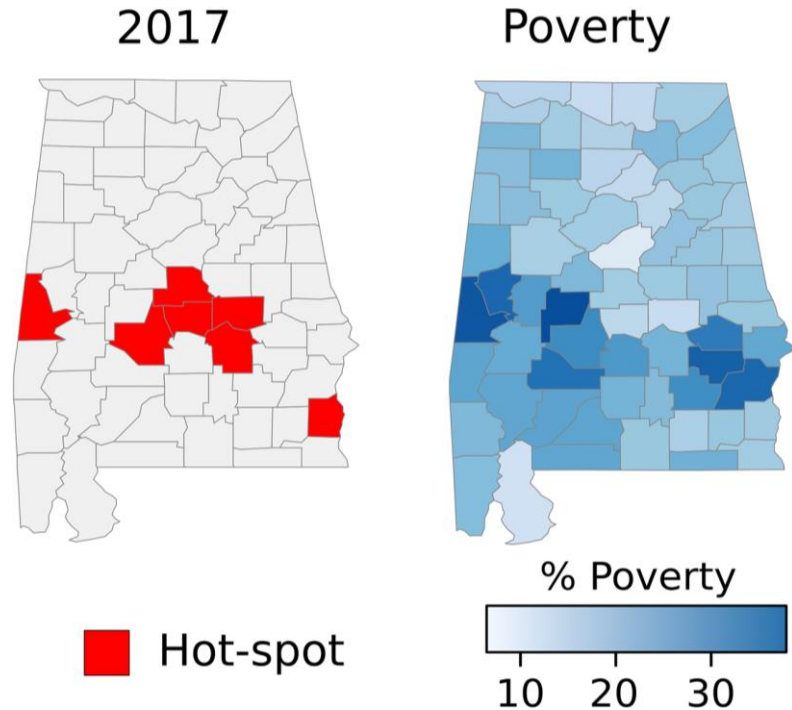
Among 24 households, 42.4% reported exposure to raw sewage within their home, and from 55 stool samples, 19 (34.5%) tested positive for *N. americanus*, four (7.3%) for *Strongyloides stercoralis*, and one (1.8%) for *Entamoeba histolytica*.



[A follow-up study by CDC was unable to verify hookworm in Lowndes County.](#)

Warm Temperatures + Standing Water -> Mosquito habitats

STUDY: Arboviral diseases and poverty in Alabama, 2007–2017



Data: 10 years (2007–2017) of county level human arboviral case data from the state of Alabama

Objective: Understand the roles socioeconomic (poverty rate) and environmental (land use, precipitation, land cover) conditions related to patterns of arboviral disease

Finding: Significant association between poverty rate and incidence of WNV, an arbovirus primarily transmitted by *Culex* spp. mosquitoes, which are known for thriving in contaminated water sources and sewage overflow.

Sewage Crisis in Alabama's Black Belt Spawns Complaint

Mar 13, 2023 — The issue is widespread: Across the country, wastewater systems are functioning ... In one Black Belt county, a 2017 study found that 73% of ...



AL.com

<https://www.al.com/news/2022/08/the-president-dir...>

White House pledges to solve Alabama's Black Belt ...

Aug 8, 2022 — ... said that the state was using a three-pronged approach to address ...
Black Belt sewage issues. First, the state will look to extend ...

Years of Acknowledging the Problem with Blackbelt Sewage

How much untreated sewage gets dumped in Alabama

Apr 13, 2019 — The sanitation issues in the Black Belt drew worldwide media ...
when a team from the United Nations toured the area and said ...



Al Jazeera

<http://america.aljazeera.com/articles/filthy-water.html>

Filthy Water Plagues Black Belt Counties

Jun 3, 2015 — Alabama's **Black Belt** has long been plagued with diseases related ...
sewage, like hookworm, a tiny parasite that enters the body often ...



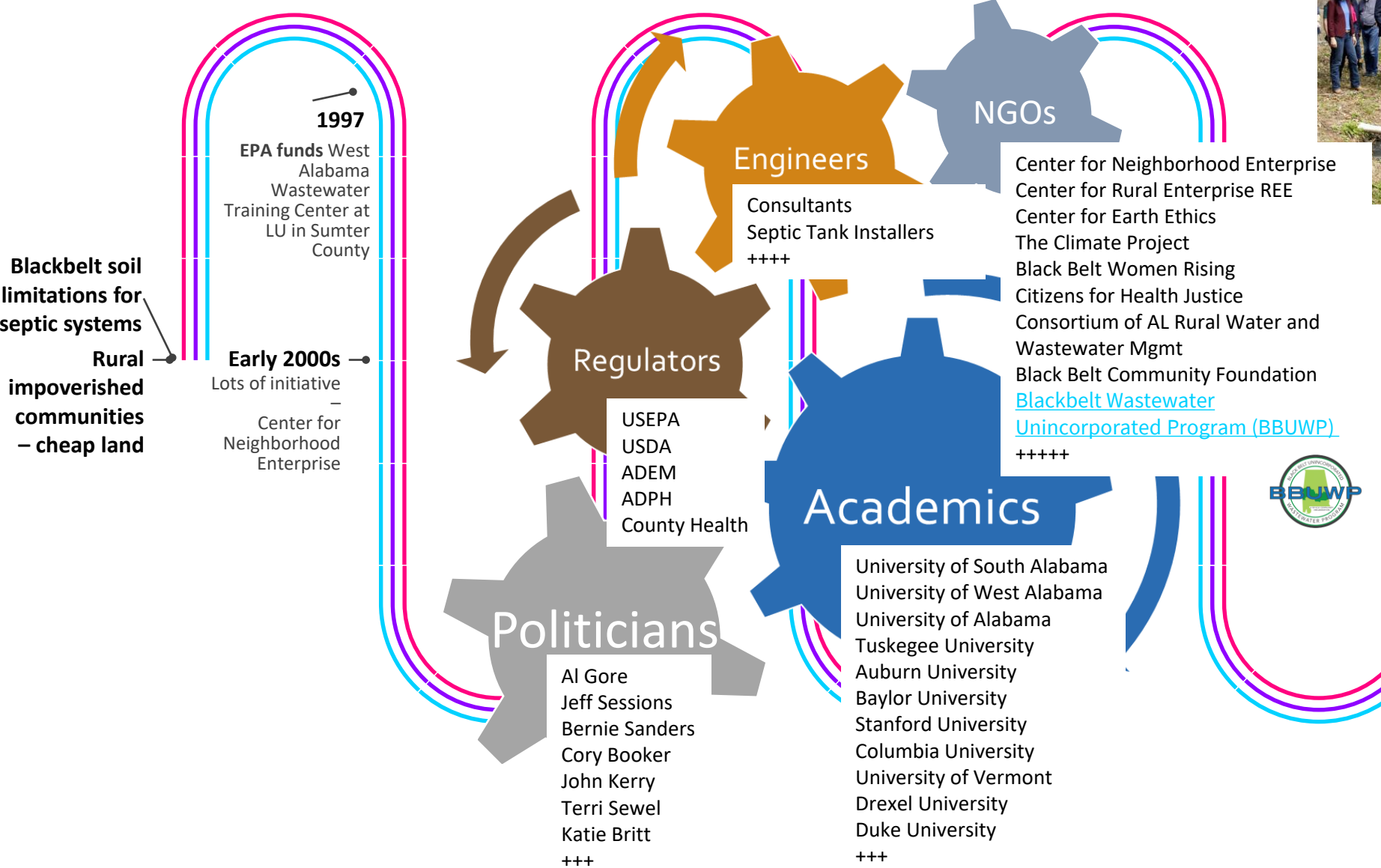
Montgomery Advertiser

<https://www.montgomeryadvertiser.com/2022/03/30/>

Rural Alabama wastewater infrastructure 'public health ...



Black Belt Road to Sanitation Equity



EPA Journey to Justice Tour



Closing America's Wastewater Access Gap Community Initiative



Unprecedented Funding for Water/Wastewater Infrastructure

\$225 M – ARPA

\$127 M – BIL

\$111 M – SRF

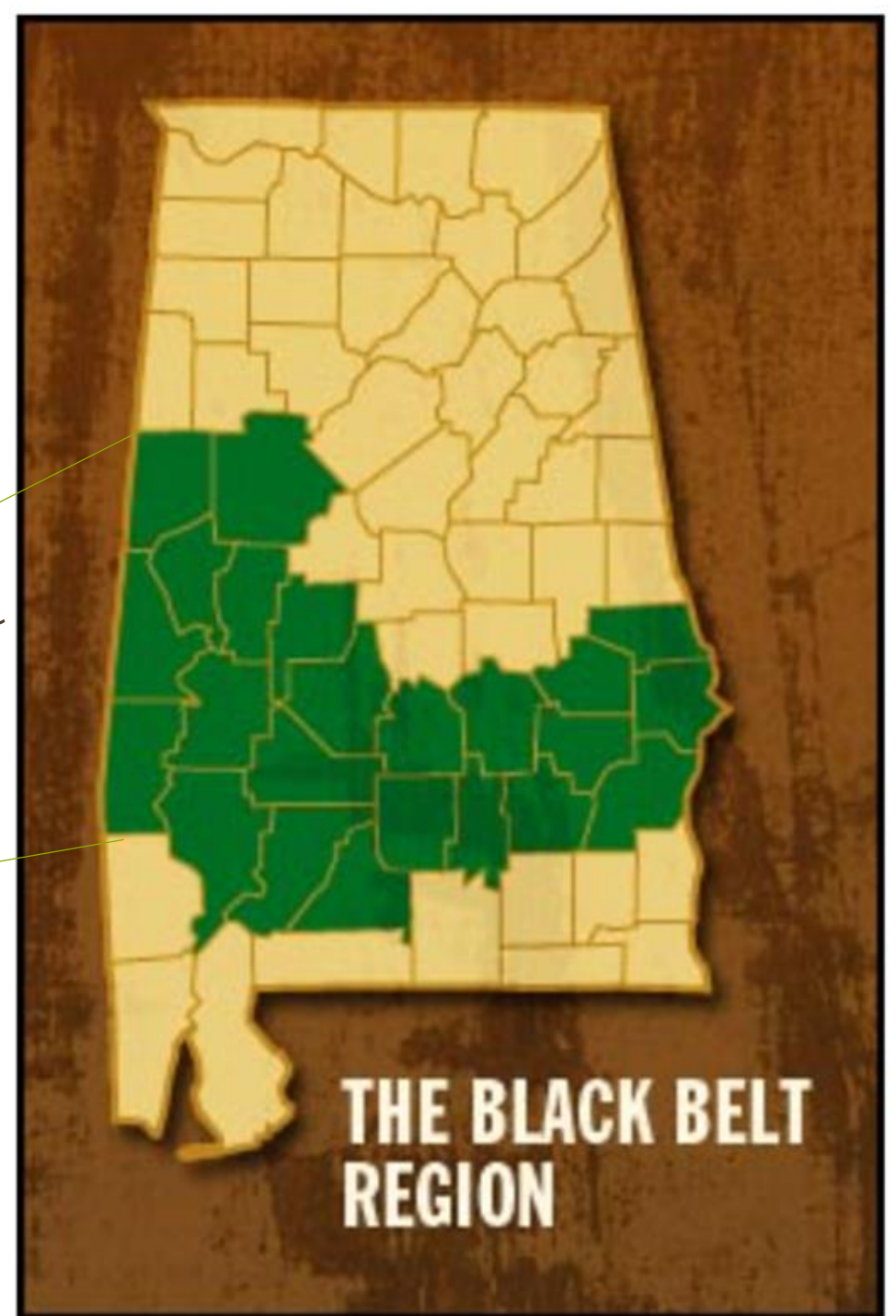
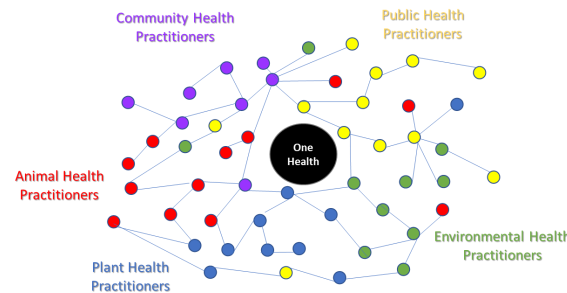
\$463 M total funding to Alabama

In 2022, Alabama Department of Environmental Management (ADEM) received 627 applications from 514 water and wastewater systems for projects
...approximately \$3B requested.



*>\$150M / 34% of funding went to Black Belt
53 projects*

Local Mayor ; State Senator ; State – Department of Environment; US Representative; US EPA Regional Administrator



DISCLAIMER

The views expressed in this presentation are those of the author and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency



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