

# UK-CARES 2020 COMMUNITY ENVIRONMENTAL HEALTH ASSESSMENT

## KENTUCKY RIVER AREA DEVELOPMENT DISTRICT

- Breathitt
- Knott
- Lee
- Leslie
- Letcher
- Owsley
- Perry
- Wolfe



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# KENTUCKY RIVER AREA DEVELOPMENT DISTRICT AT A GLANCE



## INDOOR & OUTDOOR AIR

**72%** 

Are concerned about mold and pollen indoors

**73%** 

Are concerned about secondhand smoke exposure



## EMERGING THREATS

**89%**

Are concerned about both infectious disease and flooding

- Breathitt
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## WATER

**84%** 

Are concerned about chemicals in their **tap water**

**75%** 

Are concerned about both the pipes and the integrity of **municipal/ public water lines**

**73%** 

Are concerned about bacteria in their **private well water**

**85%** 

Are concerned about lead and other heavy metals in their **tank water**

**88%** 

Are concerned about impact of chemical spray on **streams and other water sources**

## WHAT DID WE WANT TO KNOW?

Researchers at the University of Kentucky Center for Appalachian Research in Environmental Sciences (UK-CARES) wanted to learn the concerns of community members in the Big Sandy, Kentucky River, and Cumberland Valley Area Development Districts (ADDs) to better understand and address health issues related to:



## WHAT DID WE DO?

In the summer of 2020, UK-CARES invited community organizations in southeast Kentucky to distribute an on-line community survey to gather community member concerns related to environmental health. Those living and/or working in the Big Sandy, Kentucky River, and Cumberland Valley ADDs were invited to participate via email and social media and encouraged to share the survey with others. Participants were asked to indicate their level of concern using a 5-point scale (from '1-not at all concerned' to '5-very concerned').



## WHAT DID WE FIND?

Collectively, environmental health concerns were identified from a total of 261 community members of the Big Sandy, Kentucky River, and Cumberland Valley ADDs.

This report contains findings from 78 community members who live and/or work in the Kentucky River ADD.



69% female



75% college grads



70% age 25-64

The majority of Kentucky River ADD participants were females with a college degree between the ages of 25-64.

Results are provided in a graph format. Along the left side of the graph is, "Percent concerned." This indicates the percentage of participants who responded that they are concerned about a particular contaminant or issue. Each column is labeled with the contaminant or issue of concern from left (greatest concern) to right (least concern). In addition, the number of participants who provided responses to the particular source of concern, such as indoor air quality, is provided below each graph.

For example, in the graph showing indoor air quality concerns, when asked to identify concerns related to indoor air quality, 63 participants provided a response. Of those who provided a response, the issue of greatest concern about indoor air quality is mold and pollen and the issue of least concern is electric and magnetic fields.

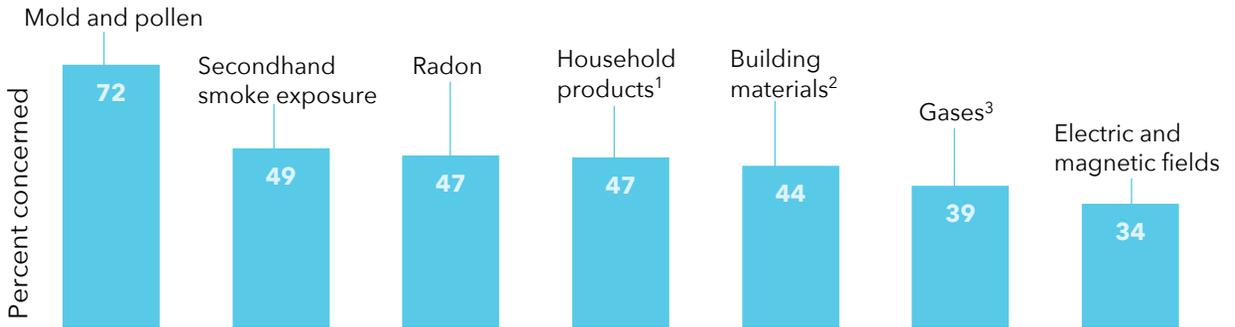




# INDOOR & OUTDOOR AIR

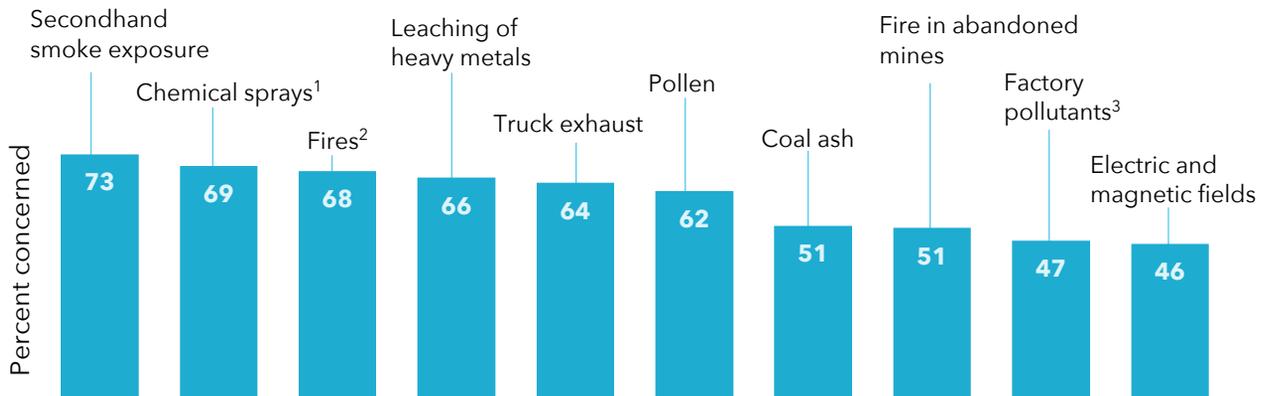
People in the Kentucky River ADD are concerned about the quality of the air they breathe.

The greatest concern about **INDOOR AIR** quality is mold and pollen and the least concern is electric and magnetic fields.



*\*based on up to 63 responses; <sup>1</sup>household products (chemicals and other consumer products); <sup>2</sup>building materials (asbestos, formaldehyde); <sup>3</sup>gases (carbon monoxide)*

The greatest concern about **OUTDOOR AIR** quality is secondhand smoke exposure and the least concern is electric and magnetic fields.



*\*based on up to 72 responses; <sup>1</sup>chemical sprays by power companies to control weeds; <sup>2</sup>fires (camping, trash, forest); <sup>3</sup>factory pollutants (e.g., dioxins, per- and polyfluoroalkyl substances (PFAS))*

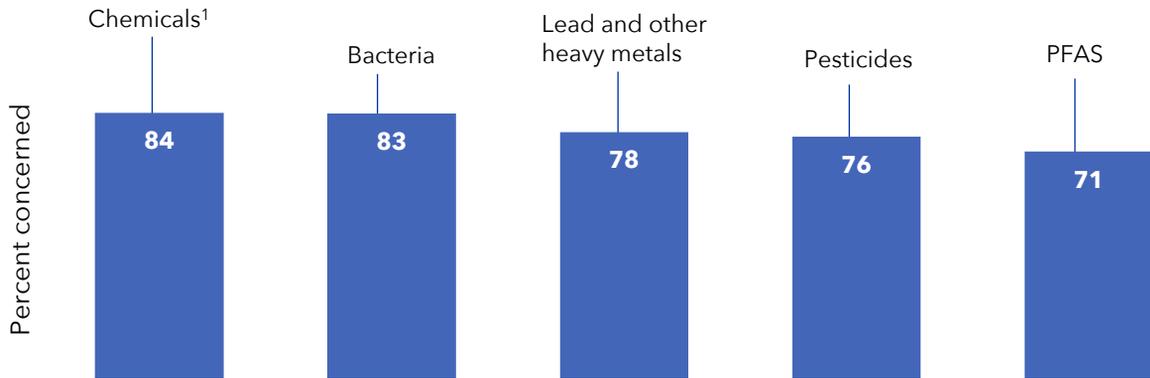




# DRINKING WATER

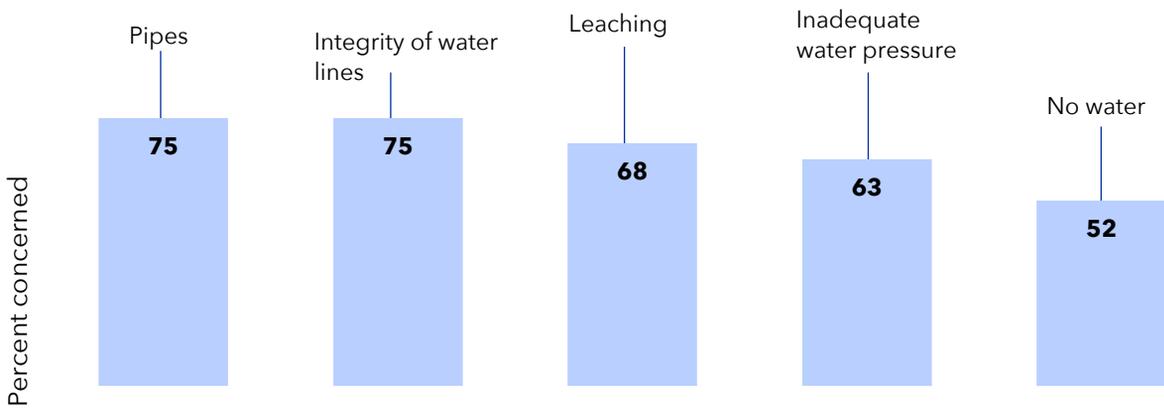
People in the Kentucky River ADD are concerned about access to quality water.

The greatest concern about **TAP WATER** is chemicals and the least concern is per- and polyfluoroalkyl substances (PFAS).



*\*based on up to 49 responses; <sup>1</sup>chemicals (e.g., chlorine)*

The greatest concerns about **MUNICIPAL/PUBLIC WATER SUPPLY** are the pipes and the integrity of the water lines, and the least concern is having no water.



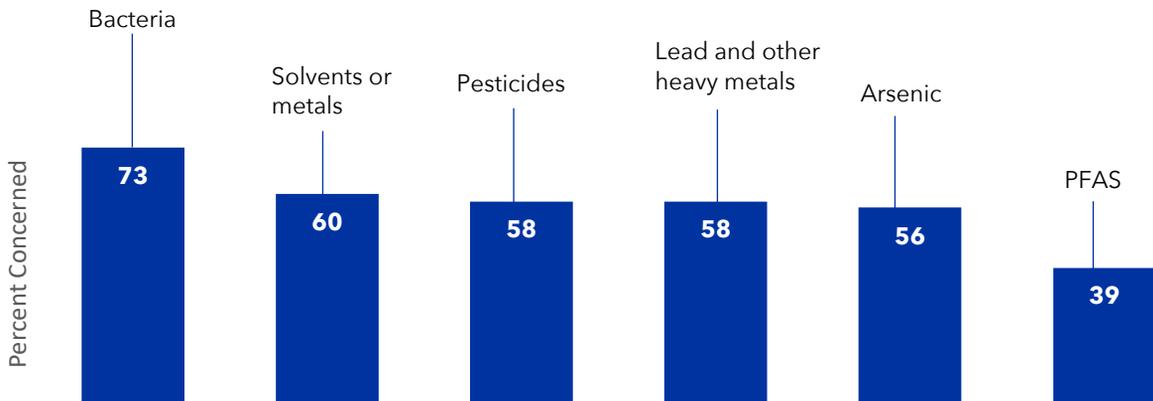
*\*based on up to 56 responses*





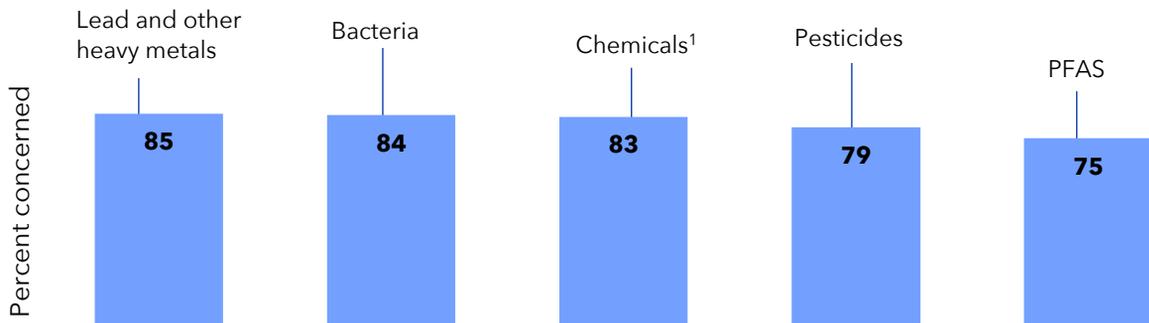
# DRINKING WATER

The greatest concern about **PRIVATE WELL WATER** is bacteria in the water and the least concern is per- and polyfluoroalkyl substances (PFAS).



*\*based on up to 26 responses*

The greatest concern about **TANK WATER** is lead and other heavy metals, and the least concern is per- and polyfluoroalkyl substances (PFAS).



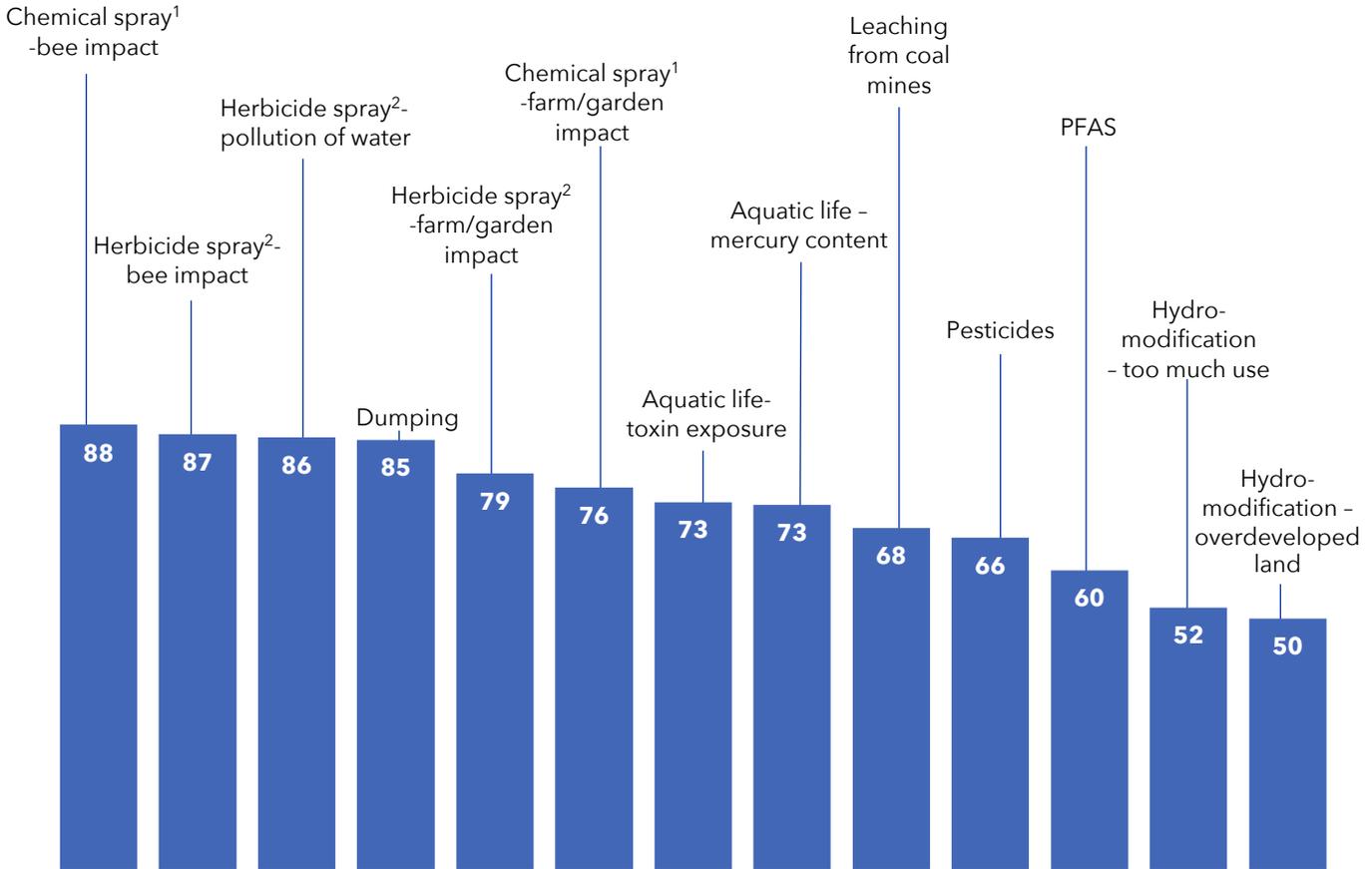
*\*based on up to 26 responses; <sup>1</sup>chemicals (e.g., chlorine)*





# STREAMS AND OTHER WATER SOURCES

The greatest concern about **STREAMS, WATERSHEDS, LAKES, CREEKS, and RIVERS** is the impact of chemical spray on bees and the least concern is hydromodification (overdeveloped land).



\*based on up to 55 responses; <sup>1</sup>chemical sprays from power companies to control weeds ; <sup>2</sup>highway herbicide spray program

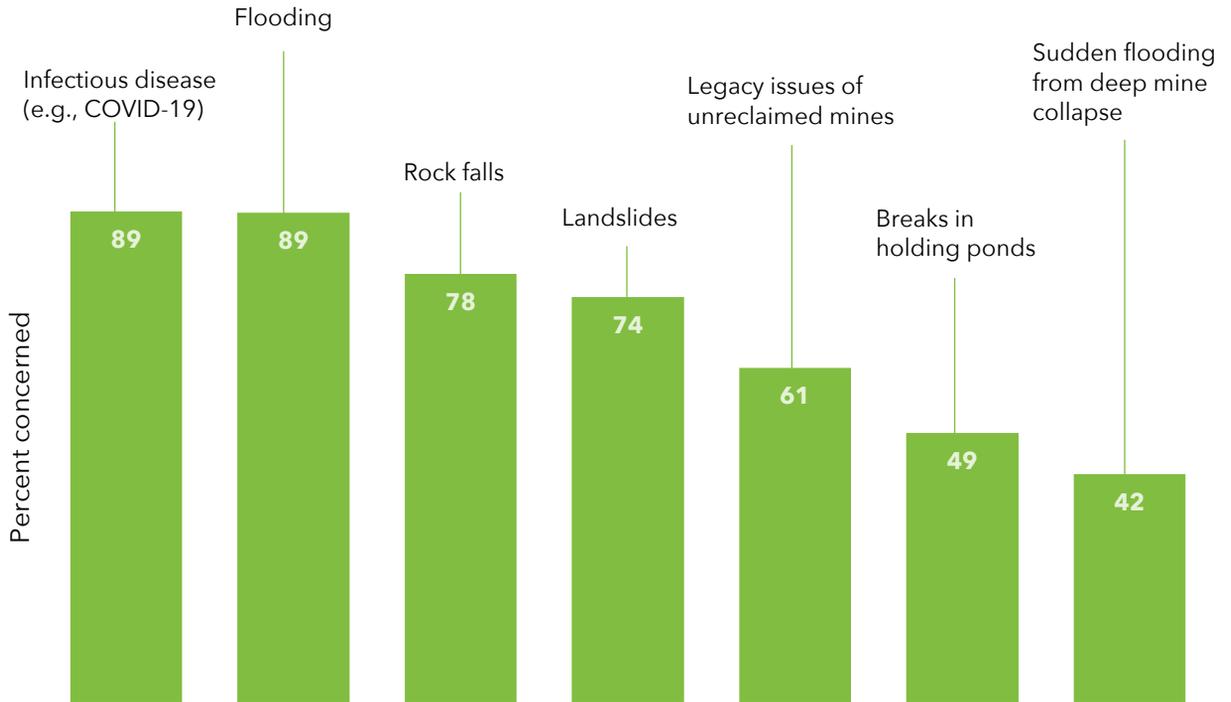




# EMERGING THREATS

People in the Kentucky River ADD are concerned about emerging threats to the environment.

The greatest concerns about **EMERGING THREATS** are infectious disease and flooding, and the least concern is sudden flooding from deep mine collapse.



*\*based on up to 55 responses*



## WHAT DOES THIS MEAN FOR YOU?

The environment affects our health in many ways. If you have concerns about the health of the environment in the Kentucky River ADD, you are not alone. Poor water and air quality are linked to a variety of health issues. Communities are experiencing devastation like never before as extreme weather and natural disasters become more frequent, in part due to climate change.

Many of the contaminants and disasters identified in this report cannot be managed solely by individual residents and they may require programs and/or governmental policies to address the environmental health concern. For example, communities in the region are enacting smoke-free ordinances covering all indoor workplaces and enclosed public places. In doing so, these communities protect current and future generations from the dangers of secondhand smoke.

There are also actions that individuals and households can take to protect the environment and reduce the risk of experiencing poor health. For example, individuals and households can agree to keep smoke and e-cigarette aerosol outside the home and car, keeping indoor air free of secondhand smoke. Similarly, individuals can properly dispose of trash and communities can organize community clean-up events, keeping litter from polluting waterways.

## WANT TO TAKE ACTION?

UK-CARES supports residents and organizations in southeastern Kentucky by exploring how exposure to environmental contaminants and emerging environmental threats affect individual and community health. We do this by connecting community members with UK faculty and engaging citizen scientists on novel projects.

Every year, UK-CARES issues a request for applications for Community Engagement Projects. Funding is available to support community partner organizations for projects which contribute to environmental exposure science and the prevention and treatment of environmentally-induced diseases in the Big Sandy, Kentucky River, and Cumberland Valley Area Development Districts.

For more information on Community Grants, or to apply, contact [kelly.kennoy@uky.edu](mailto:kelly.kennoy@uky.edu), check out our [website](#), or call 859-323-4587.

Also, UK-CARES welcomes Community Membership in the Center. Those who are eligible include individuals who: 1) are actively engaged in UK-CARES activities and/or; 2) direct a UK-CARES funded community grant and/or; 3) are faculty from regional colleges or universities in Southeastern Kentucky.

### Community Member benefits include:

- Invitation to all P30 UK-CARES events
- Monthly newsletter
- Opportunity to partner with environmental health science research faculty who can act as a co-investigator or mentor
- Opportunity to serve on the review committee for the UK-CARES Pilot Project Program
- Opportunity to be featured on the UK-CARES website, social media, and other promotional material
- Participation in faculty development activities that provide for exchange of ideas and shared resources
- Opportunity to network and collaborate with other UK-CARES members
- Interaction with community partners and faculty to address local environmental health concerns

For more information about Center Memberships and to apply visit: <https://ukcares.med.uky.edu/uk-cares-center-membership>

## ABOUT UK-CARES

The University of Kentucky Center for Appalachian Research in Environmental Sciences (UK-CARES) is an Environmental Health Sciences Core Center to enhance research capacity focused on major environmental health impacts to air and water quality that have been implicated in environmentally induced disease. This center provides advanced infrastructure and leading expertise, dedicated career development and mentorship, and community-engaged interactions to facilitate innovative discovery and new understandings of environmental factors in disease initiation, progression, and outcomes and their community impacts.

### BIG SANDY AREA DEVELOPMENT DISTRICT

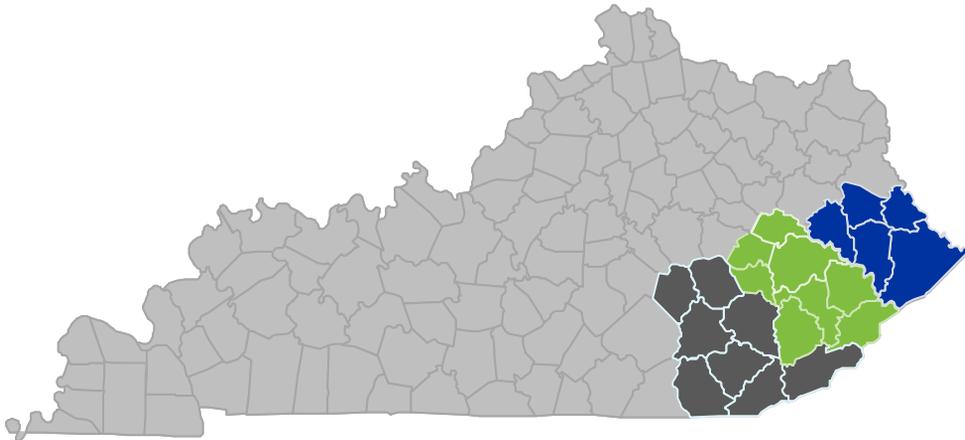
- Floyd County
- Johnson County
- Magoffin County
- Martin County
- Pike County

### KENTUCKY RIVER AREA DEVELOPMENT DISTRICT

- Breathitt
- Knott
- Lee
- Leslie
- Letcher
- Owsley
- Perry
- Wolfe

### CUMBERLAND VALLEY AREA DEVELOPMENT DISTRICT

- Bell
- Clay
- Harlan
- Jackson
- Knox
- Laurel
- Rockcastle
- Whitley



**VISION:** Reducing health risks and disparities in rural Appalachia through novel environmental health research

**MISSION:** To discover and translate research on how the environment affects the health of people in rural Appalachia.

**VALUES:** Community Partnerships • Health Equity  
Responsible Conduct of Research • Team Science

### GOALS:



Advance multidisciplinary environmental health science



Analyze organic pollutants and trace-elements



Learn with and from the community



Cultivate early-stage and established investigators



Build science communication skills

### SCIENCE THEMES:



WATER



INDOOR & OUTDOOR AIR



EMERGING THREATS

## ACKNOWLEDGMENTS

UK-CARES would like to thank Markey Cancer Center's Research Communications Office for their assistance with the graphics and development of this document as well as Markey's Community Impact Office for their assistance in the distribution of this document.



With deep gratitude, UK-CARES acknowledges and thanks our Stakeholder Advisory Board (SAB) members. SAB members are a group of individuals who are passionate and committed to improving environmental health in southeastern Kentucky. Our SAB provides invaluable ideas, suggestions and feedback on how to better engage, serve, support, and protect the communities of the Big Sandy, Kentucky River and Cumberland Valley Area Development Districts.

## UK-CARES SAB MEMBERS

NAME	ROLE/AFFILIATION
John "JD" Miller (Co-Chair)	Chair of the Board, Clover Fork Clinic, Harlan County, KY
Erin Savage (Co-Chair)	Central Appalachian Senior Program Manager, Appalachian Voices, Boone, NC
Kimberly Brown	Regional Academic Director, Lindsey Wilson College, Columbia, KY
Mary Cromer	Deputy Director, Appalachian Citizen Law Center (ACLC), Whitesburg, KY
Andrea Massey	Program Coordinator, Southeast Kentucky Community and Technical College, Cumberland, KY
George Massey	City Council Member, Benham, KY
Beverly May	Project Manager, UK Mountain Air Project, Floyd County, KY
Deronda Mobelini	Chief Student Affairs Officer for Hazard Community and Technical College, Hazard, KY
Kelly Owens	Director, Southern Kentucky Area Health Education Center, Mt. Vernon, KY
Tiffany Pyette	Community Advocate/Member, Kentuckians For the Commonwealth, Floyd County, KY
John Rosenberg	Director Emeritus, Appalachian Research and Defense Fund of KY (AppalRed Legal Aid), and Founding Chair, ACLC, Prestonsburg, KY
Delores Silverthorn	Citizen Scientist, Columbiana County, Ohio
Evan Smith	Advocacy Director, AppalRed Legal Aid, Prestonsburg, KY

## GLOSSARY OF TERMS

**Arsenic:** a naturally occurring element that is widely distributed in the Earth's crust. It is found in water, air, food and soil and is used in pesticides, wood preservatives, and tobacco

**Electric and magnetic fields (EMFs):** consist of waves of electric and magnetic energy moving together that surrounds us all the time. The health effects of EMFs is inconclusive

**Herbicide:** a chemical substance that is toxic to plants, used to destroy unwanted vegetation

**Hydromodification:** the alteration of the natural flow of water through a landscape. For example, straightening, widening, deepening, or relocating existing, natural stream channels

**Infectious disease:** a disease caused by organisms such as bacteria, viruses, fungi or parasites which have entered the body

**Leaching:** the dissolution of a variety of metals and chemicals into drinking water

**Legacy mining:** land which has been mined and is now being used for another purpose, or is orphaned, abandoned or derelict and in need of remedial work

**Per- and polyfluoroalkyl substances (PFAS):** a group of man-made chemicals used in a variety of industries around the world (e.g., food packaging; water-repellent fabrics; nonstick products; electronic manufacturing) which remain in the environment and in the human body and accumulate over time

**Pesticide:** a chemical substance used for destroying insects or other organisms harmful to plants or to animals

**Secondhand Smoke:** smoke from burning tobacco products, like cigarettes, cigars, hookahs, or pipes, that is exhaled, or breathed out, by the person smoking

**Solvents:** liquid substances capable of dissolving other substances

**Tank water:** A container used for the storage of water for use in many applications including drinking water, irrigation, farming, food preparation as well as other uses. Tank water is susceptible to bacteria, viruses, algae, changes in pH, accumulation of minerals, and accumulated gas

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