Climate change literacy lessons from Africa: Knowledge is key

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Addressing the climate crisis will require cooperation on a massive scale, but to accomplish this, people need to know what specific challenges lie ahead and how to best move forward. Across the globe, people are facing the effects of the climate crisis, yet many are still unsure how and even if they can address it.

Researchers from the University of Cape Town, South Africa and the University of Connecticut published work today in *Nature Climate*

Change studying the magnitude of this challenge by looking at rate of climate change literacy in Africa. A recent survey by the Afrobarometer public opinion research network found that over two thirds of Africans say climate conditions for agricultural production have worsened over the past ten years; 71% of Africans are aware of climate change and agree it should be stopped, but; only 51% expressed confidence about their ability to make a difference.

Talbot Andrews, assistant professor of political science and co-author of the study, says, "The environment is changing because of climate change and people need to adapt. If people are literate about climate change and have a better idea of what's coming, then they can adapt more effectively. Increasing climate change literacy will be a big step in making sure people prepare themselves for the future."

Though the study focuses on Africa, climate change will bring economic and environmental challenges as well as opportunities around the world, and those who understand the risks will be better prepared to respond.

"Anticipating climate changes in decision-making concerning their livelihoods, careers, and investments will help everyday Africans safeguard their futures," says University of Cape Town researcher Nicholas Simpson. "Without climate change literacy, the understanding the human causes of climate change, and its potential impact on the world, hundreds of millions of people across Africa will not be able to sufficiently adapt to climate change."

The researchers set out to quantify climate change literacy rates in Africa and identify the main social and environmental predictors of climate change literacy across the continent.

Though climate change literacy underpins more informed responses to climate change, very little was known about national and subnational

variation of climate change literacy or the drivers of this variation in Africa.

The researchers conducted a meta-analysis of past research identifying the drivers of climate change literacy in Africa, then they conducted their own analysis combining public opinion and environmental data. Their primary data source was Afrobarometer, the largest public opinion survey in Africa conducted during 2016–2018 on nationally representative samples covering 44,623 respondents in 33 countries, representing 61% of Africa's population. This survey measured climate change literacy, as well as perceptions of climate change and sociodemographic factors such as age, gender, education, and wealth.

Prior to this study, there was no multi-country study to estimate how many Africans were both aware of climate change and its anthropogenic causes. Previously published studies concentrated most on perceptions of climate and weather changes in Africa, often only among certain groups in a given country, rather than awareness of climate change and climate change literacy at a larger scale.

"The strongest predictor of climate literacy is education by far, and what's great about education is that it's equally effective for both men and women," says Andrews. "There is this big gender gap with climate change literacy, but education is helping close this gap. We also see that wealthier Africans and more mobile Africans are much more likely to be climate change-literate while poor Africans are less likely to be climate change-literate. But people who are poorer and more vulnerable are more likely to notice the changes in the environment and see how things like precipitation and drought are changing."

The average national climate change literacy rate in Africa is 37%. Co-author and University of Cape Town researcher Chris Trisos points out that this is important because, "Across Europe and North America

climate change literacy rates are generally over 80%, highlighting a severe deficit for Africa."

There is an additional deficit such that in every country, climate change literacy is higher among men than women.

"These are concerning findings given that women are often more vulnerable to climate impacts than men," says Andrews. "Women are much more vulnerable to the changes of climate change because of power differences and gender dynamics. Men tend have higher socio-economic status, more political power, and more power within the household. The types of adaptation that families and communities use in order to prepare for climate change are driven by men, and don't necessarily address the kinds of vulnerabilities that affect women."

Optimistically, however, the researchers find that education is generally equally effective in increasing both men and women's climate change literacy. These findings together suggest education will be a critical tool both in reducing the climate change literacy gap between Africa, Europe, and North America, as well as the gap between men and women's climate change literacy within the African continent.

These results can help policy makers develop and target interventions to increase climate change literacy. Africa is projected to undergo substantial shifts in urbanization, education, gender equality, mobility, and income in the near future. Rates of climate change literacy are therefore likely to evolve with these processes, as well as with changing climate hazards.

The researchers next steps are to repeat these findings in the eighth Afrobarometer round of survey data and look for variations in rates for countries between the 2017 and 2021 surveys together with updated climate data.

Andrews is also working on similar studies focusing on the urban/rural divide in the United States, where education is also a factor in climate literacy.

"In the US, climate change is much more polarized and we see a big Democrat/Republican divide that lines up with the urban/rural divide. It is hard to disentangle those factors. But the environment is changing because of climate change, and people need to adapt," Andrews says.

More information: Nicholas P. Simpson et al, Climate change literacy in Africa, *Nature Climate Change* (2021). DOI: 10.1038/s41558-021-01171-x

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