Climate adaptation research applied 'in real-time'

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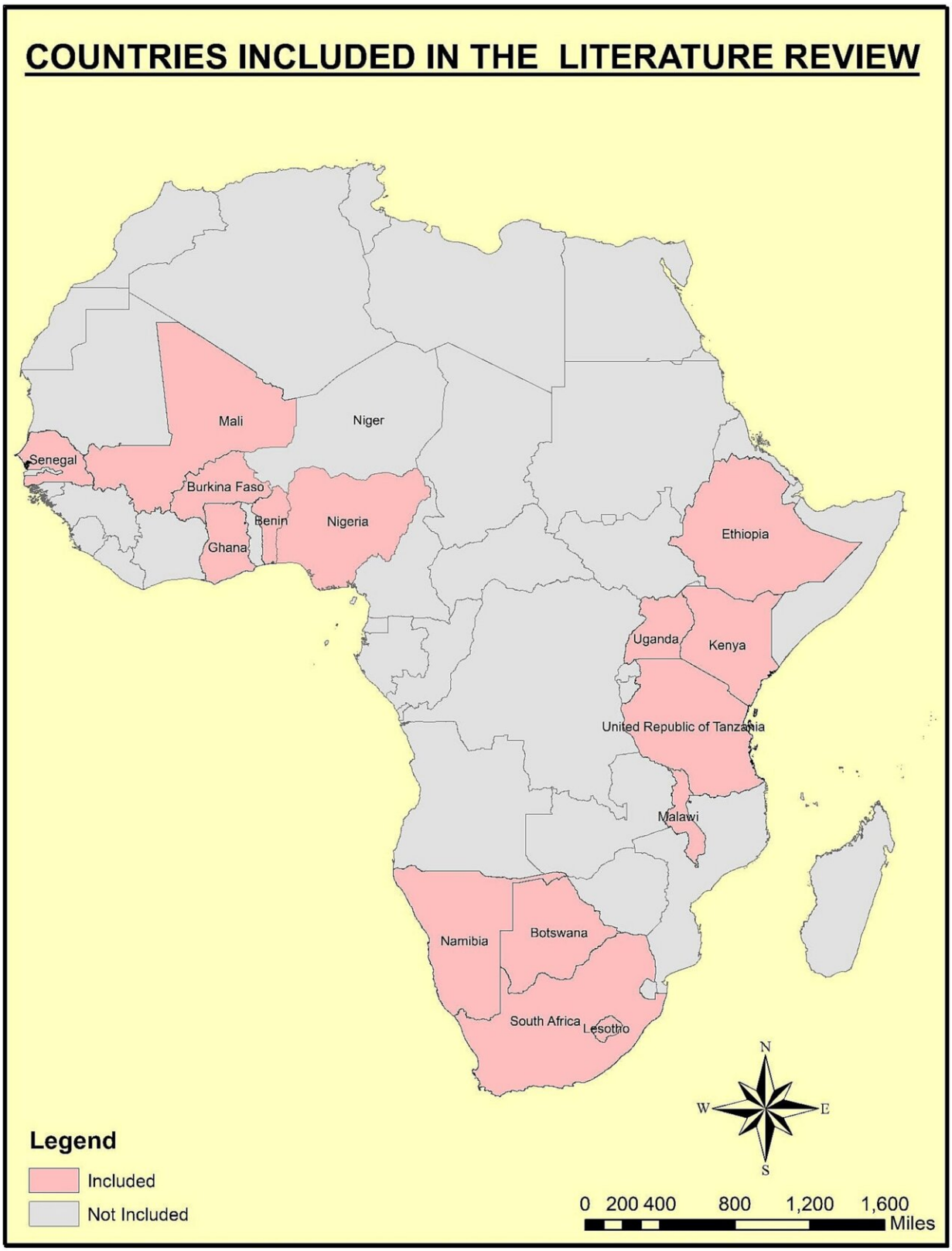

The map of showing countries included in the study. Credit: *Climate Services*

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With global South countries already bearing the devastating consequences of climate change, adaptation research needs to have immediate on-the-ground impact, while still being scientifically rigorous, say climate action specialists in a review published in *Climate Services*.

"With the climate crisis before us, we don't have time to sit back and do a conventional research program of two, or five, or 10 years, and then use the research itself," says Jesse DeMaria-Kinney, head of secretariat of the Adaptation Research Alliance (ARA).

The effects of climate change, fueled by the greenhouse gases humans are pumping into the atmosphere, are being felt acutely in the global South as temperatures rise, seasons shift, and extreme weather events, such as floods and storms, become more frequent and intense.

Adaptation, which involves changing ecological, social or economic systems to make them better able to weather the risks of climate change, "is a critical component of the long-term global response to climate change to protect people, livelihoods and ecosystems," according to the United Nations Framework Convention on Climate Change.

But the difficulty is that research, as it is traditionally undertaken, has long lead times and that model is not fit for a rapidly changing climate.

"Decisions and actions have to be made now and they need to be made on the best available evidence," says DeMaria-Kinney. "But we need to build flexibility into research and that flexibility has to be informed by a

continual research and iterative process that runs parallel to implementation."

Action-oriented research

Last year, at the UN climate summit COP28 in Dubai, ARA announced that it had mobilized more than £3 million (US$3.8 million) in investments for action-oriented research that addresses pressing adaptation needs of those most vulnerable to climate impacts.

Formally launched in 2021, the ARA is a global coalition of organizations committed to action-orientated research for adaptation. Its 250 members range from intergovernmental organizations such as the United Nations Environmental Program to small community-based organizations.

"Action-orientated research is a paradigm shift in the way that the ARA sees research being done on climate change adaptation," DeMaria-Kinney says.

"This kind of research really focuses on ensuring impact for those on the frontlines of climate change, building capacity throughout the research processes, and the research actually being done with the end users."

Action-orientated research is different from traditional research because it happens alongside the implementation of findings on the ground, DeMaria-Kinney explains, adding that it focuses on "learning while doing."

He stresses that it should be driven by the needs of affected communities, working with those communities to co-design projects and find solutions that will have genuine societal impact.

One of the major investments announced by ARA was for the new Research 4 Impact (R4I) Hub, set up as part of the Climate Adaptation and REsilience (CLARE) research program, jointly designed and run by the UK's Foreign, Commonwealth and Development Office and Canada's International Development Research Center (IDRC).

"We're in a decisive decade," says Bruce Currie-Alder, who leads the climate team at the IDRC. "We often know enough to act" and with action-oriented research, "you use research as a learning tool in real-time," implementing and testing findings immediately to determine what worked and what didn't, he explains.

As an example he points to flood preparedness in communities in West Africa and the research that can be done ahead of an actual flood event to determine the most effective action. In October 2022, more than 3.4 million people were displaced following floods in Nigeria, Chad, Niger, Burkina Faso, Mali and Cameroon.

"What's the tailoring that needs to be done at a community level?" Currie-Alder asks. If a community were flooded, would its residents be able to receive cash transfers to tide them over during the flood and in its aftermath? "What types of measures are needed 72 hours before the water starts rising? These are researchable questions," he says.

Research findings could be implemented immediately to prepare the community for the next flood, he explains, and scientists could then research whether the interventions made a difference and how they could be improved.

Research for impact

The R4I Hub's new Opportunities Fund aims to translate research and existing knowledge into practical applications for communities in the

global South. Project funding ranges from C$15,000 (US$11,00) to C$60,000 (US$44,000), and interventions need to be completed within a year, Currie-Alder says. It is open to governments and quasi-government agencies, and non-governmental and civil society organizations that want to put evidence into action.

"Over the years, I've heard people say things like, 'I don't have time to wait for a new research project to get up and running and develop answers—I only have three months to get something in front of the minister and influence this particular investment,"' he adds. "This is the responsive need we're hoping that the hub will be able to address."

There are many funding opportunities available, from large international funds such as the Green Climate Fund to more modest national efforts, but small interventions which need evidence can fall through the cracks, says Currie-Alder.

For example, perhaps "there's a community investing its local funds and trying to think about the best bet in terms of local infrastructure, whether it's a drainage channel or a new road," he explains.

"These are things that sometimes go under the radar of a big research agenda. You don't go to a university and say, 'I want a Ph.D. student to do this.'" But the R4I Opportunity Fund could be able to mobilize existing expertise and research to assist.

The fund is looking for organizations that already have a clear sense of the project they need guidance on and the sort of support they need. This support could, for example, be the help of a soil scientist, an energy and water systems optimization specialist, or understanding the research around adaptation decisions.

"We're keen to learn from the hub's activities over 2024 and 2025 and

then see whether its funding needs to be bigger, and if it needs to offer a greater spectrum of funding options," Currie-Alder says.

Collaboration on the ground

Jenny Frankel-Reed, a senior program officer with the agricultural development team at the Bill & Melinda Gates Foundation, tells SciDev.Net, "We need to increase the relevance of scientific inquiry around climate action." The research should also be run by the affected regions, she says, adding, "In Sub-Saharan Africa, there's inequity both in terms of the impacts of climate and also who is generating the solutions."

The foundation has pledged £300,000 (US$380,000) to facilitate "co-creation" workshops for small-scale farmers in two African countries to identify research opportunities collaboratively. It is still deciding where the workshops will be based.

"It's always worth the time and the expense to do that [collaborative co-design] work well because the results are more durable, the buy-in is stronger, the questions are clearer—there are many advantages," says Frankel-Reed. This is one of the fundamental principles of action-oriented adaptation research.

About 70 percent of smallholder farmers in Africa rely on rainfed farming systems and this type of agriculture is particularly vulnerable to climate change, with its shifting seasons, variable temperatures, and extreme weather events.

"There's an urgency to climate adaptation that requires our research to be shaped by the people who are affected and really collaborate with the people who will use it," says Frankel-Reed. "It also needs to be done in a way that is going to build capacity around the world so that people are

able to solve their own challenges around climate adaptation as well."

"There's a demand for this kind of research," adds DeMaria-Kinney. "That demand is seen by the ARA going from 33 when we launched at COP26 [in 2021] to having 250 members."

Action-oriented adaptation research is "flipping" the traditional research model around, says Currie-Alder. "As opposed to saying, 'What's your interesting idea and how does that influence the real work?', you're saying, 'What is the opportunity for impact, and what is the knowledge that is needed for that?'"

More information: Rejoice S. Nyoni et al, Targeting smallholder farmers for climate information services adoption in Africa: A systematic literature review, *Climate Services* (2024). DOI: 10.1016/j.cliser.2024.100450

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