The promise and pitfalls of 'climatopias' for building resilience in coastal communities

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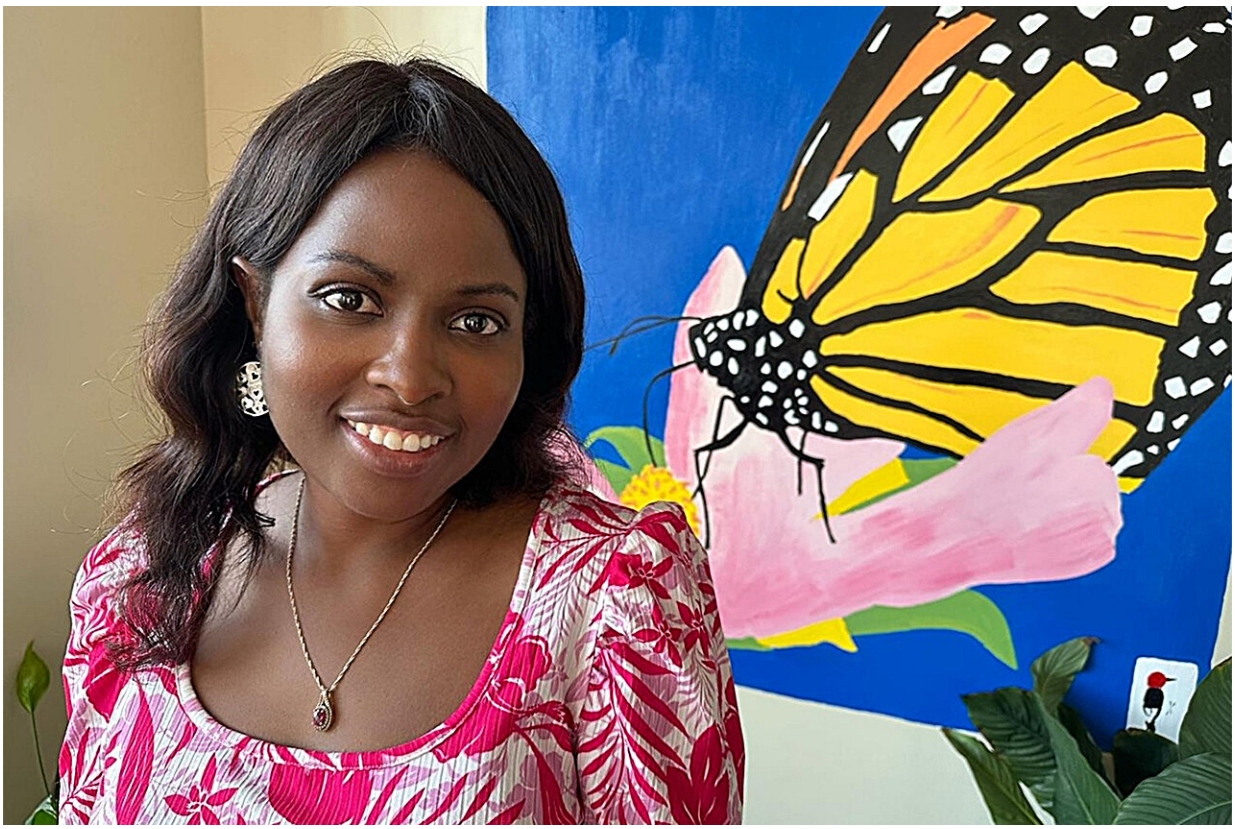

"We need to invest in projects for low-income groups because they are the most impacted by climate change," says Jola Ajibade, associate professor in Emory's Department of Environmental Sciences. Credit: Emory University

Idowu (Jola) Ajibade grew up in Lagos, Nigeria, a low-lying city built

around a lagoon bordered by the Atlantic Ocean. Flooding is a routine occurrence during the rainy season.

"It was bad," Ajibade recalls of living on the ground floor of a building during her early childhood. "We would get inundated with water until my family relocated to the upper level in a rental apartment. I don't have many childhood photos or videos like most people. Our belongings got flooded out yearly—we replaced some items, but some things are just irreplaceable."

These experiences are part of what drove Ajibade, associate professor in Emory's Department of Environmental Sciences, to become an environmental and human geographer. She explores how climate change is transforming the lives, livelihoods, social-cultural landscapes and housing access for low-income groups and historically marginalized communities.

A commentary by Ajibade and Sameer Shah from the University of Washington, recently published in *Nature*, considering whether futuristic settlements on water, so-called "climatopias," are viable ways to build resilience in coastal communities.

As urban populations boom, even as climate change exacerbates flood risks in coastal areas, governments are working with developers, architects and engineers to try to make their cities more resilient.

Many leaders are promoting showcase climatopias as viable solutions. Ajibade and Shah, however, take a more cautious approach in their commentary.

"Ultimately, climatopias can become technical solutions to a complex global challenge only if stricter planning processes, impact assessments, ecosystem protection and justice for communities are at the heart of any

coastal future," the authors write.

Examples of climatopias abound.

The Maldives Floating City is a development of modular floating platforms taking shape in the Indian Ocean, set for completion in 2027. The development aims to help the Maldives, one of the world's low-lying nations, survive the effects of rising sea levels.

Maasbommel in the Netherlands offers an example of an amphibious climatopia. The 32 amphibious homes of Maasbommel are anchored to the ground but also fastened to flexible mooring posts that allow them to move upward by more than five meters and float during floods.

Reclamation, or the practice of creating new land from oceans by filling the water with rock, cement and other materials, forms the basis for other climatopia projects worldwide. One famous example is Eko Atlantic, an enclave of sleek, modern skyscrapers rising on a two-square-mile platform of reclaimed land on the Lagos waterfront.

Dredging for Eko Atlantic began in 2009, and construction is still underway. When completed, Eko Atlantic will comprise offices and luxury condos expected to house 250,000 residents, who will be protected from storm surges by an eight-mile-long, 20-foot-tall wall of concrete and granite.

Developers laud Eko Atlantic as a way to attract transnational investment, drive economic growth, combat the effects of climate change and house more people in one of the world's fastest-growing megacities.

Getting multiple perspectives

While working on her Ph.D. as a graduate student at Western University in Canada in 2012, Ajibade returned to her hometown to research community vulnerability and resilience in Lagos, a city sharply divided between the rich and poor.

"I talked to people who lived in slums and those in wealthy areas to get both their perspectives," she says. "There was torrential rainfall during my visit and, at one point, I had to wade through chest-high water."

She notes that construction on the Eko Atlantic project has been blamed for displacing some communities and for diverting water in ways that increase the flooding burden on the poorest of the poor. Others counter that poor communities have caused the increase in flooding by building shanties on drainage systems and filling them with trash.

Some believe that Eko Atlantic will benefit low-income people by providing service jobs. Others doubt that the economic boon of the pricy new real estate will "trickle down" in ways that benefit those who need it most.

So is Eko Atlantic worth the billions of dollars that have already been invested in it during the past 16 years?

"It depends on who you ask," Ajibade says.

Improving the drainage infrastructure throughout Lagos, including in the poorest areas, might be another solution that could benefit more people.

"We need to invest in projects for low-income groups because they are the most impacted by climate change," she notes. "Climatopias can't be the focal solution, and they should be carefully considered so that they don't damage fragile ecosystems, accelerate ocean colonialism or create even more problems for people who are already living on the margins of

society."

More information: Idowu Ajibade et al, Can floating homes make coastal communities resilient to climate risks? *Nature* (2024). DOI: 10.1038/d41586-024-02679-w

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