

Climate and water in a changing Africa

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Pastoralist communities in places like eastern Kenya are especially vulnerable to not only the effects of climate change, but also to the very policies that are being put in place to address it. Credit: [Kyu Lee](#)

The following is an excerpt from an article originally published in a special issue of the journal *Daedalus* of the American Academy of Arts and Sciences.

Africa is at the center of the global water predicament and climatic upheaval. Africa contains the greatest number of least-developed countries of any continent, the most woeful sanitation infrastructure, and the highest share of people in highly weather-dependent rural employment. It is here that, owing to global warming, crop yields are expected to decline most sharply; sea-level rises along the African littoral are already higher than planetary averages. Africa's pastoralist communities are the biggest on Earth and comprise about one-fifth of its population; weather variability defines the nomadic way of life, offering many rewards but, especially in an age of uncertainty, also existential risks. Increasingly erratic precipitation patterns are especially daunting considering no continent has less reservoir capacity for water storage. The continent remains the most marginal emitter of greenhouse gasses but has perhaps the greatest untapped potential for renewable energy sources: geothermal, wind, hydro, and, above all, solar power. This issue of *Dædalus*, with its broad, interdisciplinary focus, reflects the depth and breadth of these challenges.

Grave worries about Africa's climate and aridity—or, more correctly, rainfall variability—are not new, but have shaped external dispositions toward the social, economic, and political potential of the continent in the last three centuries. Storylines regarding Africa's erratic geography and natural resource base were central in explaining the waning and waxing of imperialist ambitions on and for the continent. They rested on dubious suppositions then and still often do so today. Contrary to what is suggested by the abundance of policy reports that evoke coming "climate conflicts" and "water wars" in Africa's drylands (without much empirical evidence or analytical cogency), Africa is neither the driest continent on Earth, nor does it contain the highest number of water-stressed states. Much of the modeling on Central Africa and the Sahel is undercut by the paucity of data, current and historical, which would be required to substantiate the doom-laden language about desertification, the shrinking of arable land, and the impossibility of farming or herding of animals.

Moreover, the preoccupation with absolute levels of rainfall or moisture content in African soils, important as these are, risk occluding the arguably even more crucial question of distribution of the water.

The long tradition of framing Africa through the lens of environmental determinism continues to lead much of the epistemic and policy community to approach the continent as a passive victim that may inadvertently be exacerbating its problems. While reference is usually made to how Africa's population is rapidly growing, average plot sizes in vulnerable regions are shrinking, and disease is spreading, the implicit assumption is one in which the numbers may change, but the trends (toward greater vulnerability) and the basic character of Africa—its weakness and fragility—do not. The essays in this issue provide a snapshot of why that characterization should be questioned. They make important suggestions for rethinking the ways in which an Africa might deal with soaring temperatures, rising sea-levels, and increased rainfall variability.

The contributions here challenge conventional approaches to water, energy, and food security (and ultimately political stability) as predominantly determined by the total availability of resources in a particular social system. Supply constraints are the harbingers of dystopian crunches in the view of (Neo-) Malthusians who fear that biophysics and demography pose "limits to growth" (that is, a ceiling on how much can be produced), which we ignore at our peril in the face of escalating [climatic changes](#). Similarly fixated on the specter of chaos and dysfunctional institutions induced by scarcity, the "Africa Rising" discourse posits that technology transfer and the provision of foreign capital offer African entrepreneurs and African "smart cities," such as Kigali and (parts of) Nairobi and Lagos, opportunities to escape the Malthusian trap by boosting aggregate availability of scant commodities: credit, housing, food, water, and so on. The resultant prescriptions for policy are hence structured almost exclusively in function of shoring up

(quantifiable) supply. This is a troubling nostrum with a woeful track record across the continent as Jackie King and Cate Brown remind us in this collection. Nonetheless, its proponents maintain that Africa's fundamental problem is that there are too few resources.

In doing so, both these ways of imagining Africa neglect the vastly divergent historical experiences different people have with changing resource levels in their community and the differential meanings attached to scarcity by various social groups: the biophysical and the social are "coproduced"; one does not simply—as an independent variable—create the other. Veteran observers of the ecosystems in which cultivators and pastoralists pursue their livelihoods have long warned that the simplistic preoccupation with availability masks complex and multilayered interactions between various communities and their surroundings. In the words of historian Sara Berry: "Generalizations about agricultural practices and performance in Africa are problematic not only because reliable quantitative evidence is scarce, but also because the data available rest on misleading or overtly restrictive assumptions about the social organization of rural economic activity." The fixation with dams, irrigation canals, and mobile apps as a *deus ex machina* to solve availability constraints—rather than seeking to understand how environmental changes reflect reorderings of social relations, and social relations, in turn, manifest themselves in grazing pastures and the biochemistry of rivers—comes at a great cost. In her essay, Leila Harris notes the disinterest of supply-centered approaches in the quotidian strategies communities deploy to deal with water insecurity: "Without familiarity with these day-to-day realities, we might miss opportunities to strengthen some beneficial social practices, or in turn might aggravate aspects of the contextual realities that contribute to lack of access to safe and affordable water for all."

Malthusian and Africa Rising narratives virtually ignore political participation and social relations as determinants of how climate change

is affecting Africa—the centrality of accessibility as opposed to availability. They omit the importance of dynamic adaptation by African actors not only to climatic processes but simultaneously to reimaginings and institutionalizations of those processes. A perspective that highlights the latter does not consider supply (of water, food, technology, and so on) as a self-explanatory, neutral fact created by nature, states or markets. Instead, it understands supply as a social relationship that is endogenous to various political orders: constructed by some people for some people and, thus, often the object of contestation and an instrument of domination. Doing so underlines the importance of distributional considerations and political struggle in the framing of 'environmental' questions.

Moreover, it draws attention to the array of nondeterministic and creative interactions African actors have with their environments: it reframes them as ingenious social agents, who actively reinterpret and resist external forces that impact their relationship to water and climate locally. Shifting the focus to the lived experiences and ideas of African communities vis-à-vis their environments is thus crucial. As King and Brown state in their paper on "living rivers" managed through intercommunitarian dialog rather than scientifically objective decrees: "We understand that the choice of what that future condition [of how to deal with scarce water sources] should be is not a scientific one; there is no magic number that represents how much water to leave in a river in order to keep it healthy." The corollary of this emphasis on participation and dialog is that uncertainty and abandoning the myth of a positivist solution can lead to new forms of social living, shared meaning, and cooperation, especially at a time of seismic changes. The essays in this collection emphasize the ways in which various communities, cities, and states are already making sense of a changing Africa and proactively situate themselves in a changing world.

More information: [Link to full article: Harry Verhoeven, Climate &](#)

Water in a Changing Africa: Uncertainty, Adaptation & the Social Construction of Fragile Environments. www.amacad.org/publication/climate-changing-africa

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