

How Philanthropy Can Shape AI's Role in Climate and Health

By Sonali Madia Patel and Gayle Martin

A woman returns home after collecting water from the Brahmaputra river, on Majuli island, Assam, India. The Geotextile bags she crosses protect the embankment from erosion during peak monsoon season. Image credit: Kunga Tashi Lepcha/Climate Visuals Countdown



For smallholder farmers who often serve as the backbone of local food security in their communities, weather forecasts and climate information can influence decisions about what to plant, when to plant it, how to manage water supplies, and how best to prepare for a season of unpredictable heat or rainfall. While AI-enabled tools can't change the weather or eliminate uncertainty, if used well, they may help [translate weather observations, short-term forecasts, and seasonal climate outlooks into timely guidance](#) that people can use to make decisions.

This is especially top of mind as a strengthening El Niño shifts temperature and rainfall patterns worldwide. The warming climate is already changing the frequency and intensity of many extremes; El Niño is increasing the likelihood of disruptive conditions. To be sure, neither El Niño nor climate change explains every heatwave, drought, flood, or disease outbreak; impacts emerge from the interaction of natural variability, long-term climate trends, local environmental conditions, and social vulnerability. Nevertheless, disruptions are on the rise. Better climate information gives governments, health agencies, humanitarian organizations, and communities more time to anticipate risks and prepare.

The nexus of climate change and public health is increasingly well understood. The changing climate is increasing the spread

of infectious diseases, the occurrence of heat-related illnesses—including for pregnant women—and health emergencies from natural disasters, among others. Its effects on agriculture are exacerbating food insecurity, and fossil fuel combustion produces air pollution that harms the health of communities near highways and power plants. In turn, the stress on communities and health systems is reducing the social resilience that buffers households from shocks of all sources, including climate change.

Alas, AI will not solve climate and health challenges that are social, economic, and ecological at their core. Its potential is narrower, but still significant: helping people make better decisions by improving forecasts, identifying risks earlier, connecting fragmented data, and managing complex systems. Applications are emerging across agriculture, disaster response, clean energy, public health, and medical research—but their maturity and usefulness vary. There are also trade-offs, including the environmental impacts of the infrastructure that supports AI. For philanthropy, the task is to bring discipline and purpose to AI investment: identifying where AI can meaningfully advance climate and health goals, what conditions are needed for it to work, how to weigh costs and benefits, and where philanthropic capital can make a difference.

A Practical Frame for Funders

Funders don't need to become AI experts to make informed decisions. Given the pace and complexity of AI innovation, [working in collaboration with other funders](#), practitioners, technical experts, and affected communities can help funders stay current and make better-informed choices. A simple framework can then help distinguish real opportunities from hype. A useful starting point is to focus on areas where climate and health goals are currently held back by information gaps, weak forecasting, fragmented data, inequitable access, or limited capacity, and to ask whether AI could responsibly help.

AI may help improve or make better use of information across different time horizons, from near-term weather forecasts and early warnings, to seasonal outlooks for agriculture and disease preparedness, to longer-term climate information used for infrastructure and

adaptation planning. The information, uncertainties, and decisions involved differ for each time horizon.

Under what conditions can a promising AI tool deliver meaningful results? Technical performance is only part of the answer. An application that performs well in a data-rich health system with reliable connectivity may be far less useful where observations are sparse, computing access is limited, or services depend heavily on frontline workers. For funders, that means assessing not only the technology but also the institutions, infrastructure, skills, and local conditions required for it to work.

Bridgespan Group interviews with funders and field experts, together with our review of emerging practice, point to three areas where philanthropic support could be catalytic for climate and health:

Advance high-impact AI applications. Support organizations that are building, adapting, testing, and evaluating AI-enabled tools to advance climate adaptation, mitigation, and health goals, from agricultural resilience and disaster preparedness to clean-energy systems and epidemiological forecasting.

Align AI infrastructure with climate and health goals. Help communities, policymakers, and other stakeholders understand and address the energy, water, pollution, siting, and environmental-health impacts of the infrastructure that enables AI. This could include support for public-interest research, transparency, standards, community engagement, and accountability.

Build the foundations for responsible and equitable adoption. Invest in representative data, local institutions and partnerships, skills, governance, access, and community agency so that AI tools are relevant, usable, trusted, and responsive to the contexts in which they are deployed.

These areas are mutually reinforcing. A technically promising application, for example, has limited value without the data, institutions, skills, and trust needed to use it effectively. Likewise, AI's benefits can be undermined if the infrastructure that supports it causes avoidable environmental or community harms.

Philanthropy can therefore play a role not only in advancing promising applications

but also in helping build the conditions that enable them to deliver durable, equitable, and environmentally responsible outcomes. In practice, that may mean supporting a promising application while also funding the local partnerships, data infrastructure, workforce capacity, safeguards, or accountability mechanisms needed for it to succeed responsibly.

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Advance high-impact AI applications

Some of the most relevant near-term funding opportunities are for applied AI solutions that can help people and institutions act on complex information. The emphasis is on applications with a relatively direct pathway to climate or health outcomes.

Early examples are emerging across agriculture, disaster response, public health, and clean energy, often building on existing technology. In Ghana, [Farmerline](#) has built digital infrastructure that helps farmers access agricultural information, inputs, markets, and other services, while providing governments, NGOs, and agribusiness with better data to support their work. Its Mergdata platform supports local languages and is designed to work offline, an important feature in settings with limited connectivity. In disaster response, researchers at the [University of Cambridge](#) are developing AI tools that can process satellite imagery to identify landslides and other areas of damage after extreme rainfall or other climate-linked natural disasters, helping responders prioritize where support is most needed.

The value of applications like these, however, depends heavily on the institutions and partnerships around them: national meteorological services, agriculture and health ministries, local universities, public health agencies, civil society organizations, and community networks that can adapt information to local conditions for decision-making.

AI may also contribute more directly to climate mitigation. In power systems, AI can help forecast electricity supply and demand, integrate variable renewable generation, identify grid constraints, and improve the operation of increasingly complex electricity networks. Across buildings, transportation, and industry, AI-enabled optimization may identify opportunities to reduce energy and material use; it may also support research and innovation in areas important to decarbonization. These applications could

be consequential, but their emissions-reduction benefits still need to be demonstrated. For funders, the opportunity may lie in supporting independent evaluation of where AI produces measurable reductions, helping promising approaches move from demonstration to deployment, and ensuring that efficiency gains translate into lower overall emissions.

AI may also accelerate the development of health solutions. Machine-learning tools are increasingly used to [identify biological targets and optimize aspects of R&D](#). Researchers at the [Harvard T.H. Chan School of Public Health](#), for example, are developing AI and machine-learning approaches to strengthen infectious-disease modeling and anticipate health threats linked to environmental stressors and extreme weather. Over time, funders could help direct these capabilities toward climate-sensitive disease patterns, particularly where conventional R&D incentives are insufficient.

The current El Niño event illustrates this. By altering seasonal temperatures and rainfall patterns, this year's El Niño is changing the likelihood of drought, flooding, heat, food insecurity, poor air quality, and risks of some infectious diseases across regions. Those effects interact with longer-term climate change and local conditions rather than operating as a single causal chain. AI could [combine climate forecasts with agricultural, epidemiological, health-system, and other locally relevant data](#) to help decision makers identify vulnerable populations and allocate resources earlier. But a prediction only has value when it reaches institutions with the authority, capacity, and resources to act.

In Odisha, India, for example, the state-run Krushi Samrudhi Helpline combines farm-level information and real-time risk data on pests and extreme weather with agricultural expertise, enabling farmers to receive advice tailored to their crops and local conditions.

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At least 7.9 million farmers have used the [broader agricultural support services](#), according to the Gates Foundation. The state is also integrating AI and machine-learning tools into the system to automate and localize agricultural advisories. The example underscores that AI's value may lie less in a stand-alone tool than in strengthening an existing public system that already has relationships with farmers and a pathway for turning information into action.

AI may also help individuals and frontline workers better interpret risks. For example, [climate drivers are leading to worsening health outcomes](#) for pregnant women. In Kenya, [Jacaranda Health's PROMPTS](#) platform uses AI to help pregnant and postpartum women access timely health information and connect with care. Its AI-enabled help desk triages incoming SMS questions, prioritizes potentially urgent cases, and can trigger referral to a trained health worker when risks are identified. Jacaranda has developed the platform with government and local partners and designed it to work across languages and health-system contexts.

Tools like these could make climate and health guidance [more accessible and timely](#), by tailoring information to [language, location, health circumstances, and local context](#). They may also help frontline workers synthesize information, recognize warning signs, manage caseloads, or connect people with

appropriate services. However, these applications require rigorous testing and safeguards. Health guidance must be accurate, culturally and linguistically appropriate, privacy-protecting, and grounded in the realities of local health systems.

The practical value of these tools depends on more than technical performance. A model that is poorly matched to local data, disconnected from existing systems, or not trusted by intended users will have limited impact. This is where philanthropy can play a useful role. Funders can support testing whether a tool performs reliably in the settings where it will be used, adapting it to local data and workflows, evaluating whether it improves decisions or outcomes, and building the partnerships, training, and delivery systems needed for implementation. They can also help existing grantees assess whether AI can strengthen their work. In many settings, the most valuable investment may not be a new model at all but rather helping trusted institutions adapt and use existing capabilities.

Funders can also support meaningful evaluations to learn and improve. They might ask, for example, whether a given tool changes decisions, reaches intended users, reduces response times, improves resource allocation, strengthens institutional capacity, or ultimately contributes to better and more equitable health outcomes.

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Align AI infrastructure with climate and health goals

[AI infrastructure] work points to a broader role for philanthropy: supporting public interest research, improving transparency, strengthening standards and safeguards, and helping affected communities participate meaningfully in infrastructure decisions.

As AI becomes an increasingly important part of climate and health work, the infrastructure that supports it will matter, too. Data centers, sensors, and other infrastructure power the tools that improve forecasting, disaster response, health surveillance, medical research, and service delivery. But that infrastructure also carries environmental and community costs.

Data centers consumed about 415 terawatt-hours of electricity globally in 2024, and the [IEA projects that demand could more than double by 2030](#).

Because that demand is concentrated in particular places, new facilities can put significant pressure on local grids, water supplies, land, and communities. Can this infrastructure advance climate and health goals rather than create new burdens for the communities it is meant to serve?

Funders can help tip the balance toward advancement. The [Natural Resources Defense Council](#), for instance, has [advocated for greater transparency, stronger environmental safeguards, and meaningful community participation in data-center development](#), particularly around impacts on energy, water, pollution, and affordability. This work points to a broader role for philanthropy: supporting public interest research, improving transparency, strengthening standards and safeguards, and helping affected communities participate meaningfully in infrastructure decisions.

This support matters because AI infrastructure can place significant demands on energy, water, and other resources. Data centers require large, continuous electricity loads and, in some cases, substantial water for cooling. Hardware manufacturing and specialized chips bring additional energy, water, pollution, and supply-chain impacts.

Communities near infrastructure developments or manufacturing facilities may face local environmental health risks.

The impacts of AI infrastructure are highly local, even though the industry is global. In the United States, for instance, concerns about water use, electricity demand, land use, and local environmental impacts have already [prompted community opposition and, in some places, moratoria or tighter restrictions on proposed data-center developments](#). As investment expands globally, communities in lower- and middle-income countries should have comparable access to information and meaningful opportunities to shape decisions about infrastructure that may affect their resources and health. Those impacts will vary with the carbon intensity and reliability of local grids, competing demands for water and land, environmental protections, and the extent to which affected communities participate in decisions. Global measures of AI's footprint can therefore obscure significant local trade-offs.

Environmental trade-offs also vary considerably across AI applications. Not every use of AI needs the most computationally intensive model. Some applications—including tools built on smaller, open-source, or locally adapted models—may work better with more modest computing resources.

This makes it important to assess environmental costs in relation to the specific application and the value it creates, rather than treating all AI use as having the same footprint. It suggests a useful line of questioning for funders. What resources does a particular application require? What climate or health value does it create? And are there less resource-intensive ways to achieve the same outcome?

For funders, the implication is to evaluate AI infrastructure against the same climate, health, and equity goals as the applications it supports. This could mean supporting independent research and common metrics, improving public disclosure, enabling community participation in siting decisions, strengthening environmental health

protections, and advancing policies that align data center growth with grid reliability and decarbonization. It could also mean asking whether investments expand equitable access to useful technology without shifting disproportionate environmental or health costs onto communities with the least power to shape infrastructure decisions.

Without deliberate intervention, communities facing some of the greatest climate and health risks could have the least ability to shape or benefit from these tools. ... This outcome is not inevitable. Philanthropy can help broaden who has decision-making power to participate in AI's development and use.

Build the foundations for responsible and equitable AI adoption

The same considerations of local context, capacity, and access that determine whether individual AI applications succeed also raise a broader question: who will be able to shape and benefit from AI as its use expands?

Many of the resources needed to build and adapt AI remain concentrated in a relatively small number of countries and institutions. Without deliberate intervention, communities facing some of the greatest climate and health risks could have the least ability to shape or benefit from these tools. [Recent research warns that the rapid adoption of AI-based weather and climate information could deepen existing disparities](#) between the Global North and the Global South, given unequal access to computing and data infrastructure, geographically uneven observations and modeling, and limited participation by local knowledge holders in the development and evaluation of these systems. This outcome is not inevitable. Philanthropy can help broaden who has decision-making power to participate in AI's development and use.

Initiatives like SERVIR illustrate what this can look like in practice. Through a network of regional hubs across Africa, Asia, and the Americas, [SERVIR Global Collaborative](#) partners with regional institutions to co-develop tools that use satellite data, geospatial analysis, and emerging AI capabilities to support climate resilience, food and water security, ecosystem protection, and public health. Its model demonstrates that AI-enabled climate and health tools

are more likely to be useful when developed with local institutions rather than simply delivered to them.

One priority is better, more representative data. Funders can support open data infrastructure in underrepresented geographies, invest in local data collection and standardization, and strengthen partnerships with institutions that understand local context. They can also support governance models that give affected communities meaningful influence over how their data are collected, used, and shared.

A second priority is skills and institutional capacity. Language barriers may ease as AI models improve beyond English, expanding access to climate and health information. But translation alone is not inclusion. Tools must reflect local terminology, cultural practices, environmental conditions, laws, public institutions, and health systems.

Organizations also need people who can identify appropriate uses for AI, assess model limitations, manage data responsibly, and integrate tools into existing workflows. Funders can invest in workforce development so that local actors are not merely users of AI but also its shapers, evaluators, and owners.

[Data.org's Data and AI Fellowship](#) program offers one example of this kind of capacity-building, aiming to expand the pool of purpose-driven data and AI practitioners and to strengthen the

human infrastructure needed to use these tools effectively.

A third priority is agency, accountability, and the policy environment. Communities may reasonably be concerned about opaque systems, privacy, misinformation, or the erosion of agency. Funders can help ensure that affected communities have a meaningful voice in how AI systems are designed and governed, while also supporting nonprofits and public interest leaders in policy and regulatory debates. They can also strengthen accountability by backing independent oversight and clear mechanisms for addressing harm when AI-supported decisions fail or cause unintended consequences.

Funders with grantmaking strategies beyond climate and health may face the

same priorities of data, skills, capacity, and agency across issue areas. Some are building their own AI fluency by testing tools internally—for example, to support research, knowledge management, or operational workflows—while establishing clearer guardrails for when and how to use them. That experience is helping them ask better questions of grantees, assess opportunities and risks more confidently, and make more informed funding decisions.

AI tools are more likely to be useful, trusted, and sustained when the people and institutions closest to the problem help shape them. For climate and health funders, inclusive AI development is not only a matter of principle; it is a practical strategy for achieving better outcomes.

Start With Impact, Not Technology

AI investments are also unlikely to succeed in isolation. They depend on the underlying data, systems, talent, training, and organizational capacity that social sector organizations have historically struggled to fund. ... This means looking beyond the cost of an AI tool and considering what it will take for grantees and partners to adopt, sustain, and use it effectively.

AI is already part of the climate and health landscape. The goal for funders is to engage with discipline. Chasing novelty risks producing scattered tools that never reach the communities most affected. But ambition and responsibility should not be treated as competing objectives. Philanthropy can pursue potentially transformative applications while addressing environmental, social, and governance risks from the outset. Doing so can make promising uses of AI more likely to deliver durable impact.

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This reflects a [broader lesson from our work on AI and technology in the social sector](#): start with the mission and the outcomes an organization seeks to achieve, not with the technology itself.

The goal, then, should not simply be more AI. Indeed, we are clear-eyed about the dramatically rising energy demands of AI data centers, their potential impact on global emissions and local communities' health, and the risks of advancing the technology without proper safeguards. But AI could still lead to better outcomes for people and communities navigating a warming world. That means backing applications with a credible path to impact and investing in the conditions and partnerships that will allow them to succeed responsibly and at scale.

Partnerships will be critical to doing this well. Funders do not need—and are unlikely to be best served—by trying to build all these capabilities themselves. Collaboration among funders can help pool expertise, share learning, and reduce duplication, while working with climate and health intermediaries, local institutions, and communities can help ensure that investments respond to real needs and reach the places where they can have the greatest impact. Supporting these networks may also help promising approaches move beyond individual grants toward greater scale and impact.

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