CAN SCIENCE SAVE THE AMERICAN DREAM?

A MANIFESTO FOR THE NEXT PRESIDENT. BY CHRIS MOONEY
Modern science is necessarily international, and geographic borders play a dwindling role in defining issues scientists take on: poverty, climate change, shortages of food and water. Here, in the third installment of our Revolutionary Minds series, we profile eight revolutionary thinkers whose global research has the potential to effect worldwide change. They exemplify what it means to work without borders, defying not only geographic barriers but also far more profound ones—those that seem to limit access to vital resources in so many parts of the world.

They are doing so by refusing to be confined to the traditional territory of any one discipline. When we set out to find researchers tackling the problems of water scarcity, climate change, or conflict, what we discovered was that today’s leading lights cannot be so easily categorized. They pursue peace by promoting conservation, conservation by improving human health, health by borrowing lessons from business. The most innovative minds we came across were consistently the most interdisciplinary ones. By expanding the boundaries and the reach of traditional scientific research, they are reimagining the world’s future. —Emily Arshehs
Pallaoor Sundareshwara  

Over the last 10 years, climate monitoring stations have sprouted up all over the globe. But as scientists scramble to keep tabs on global warming, India, with a population of more than one billion but no official network for tracking climate change, remains unknown.

Atmospheric scientist Pallaoor Sundareshwara plans to change that. The lack of climate data coming from tropical and subtropical locales in general, and India in particular, “is undermining our ability to do something profound and concrete” about climate change, he says. “Global environmental changes usually occur at a very slow rate. They have a tendency to sneak up on us. Unless you’re monitoring it very effectively, you’re going to miss it.”

Sundareshwara is now leading an initiative to establish an Indian climate monitoring network called IndoFlux. Though IndoFlux is modeled on terrestrial networks overseeing other regions of the globe, such as AmeriFlux and CarboEurope, it will expand on them to monitor the land, the coast, and the ocean under a single integrated network. This broad approach means IndoFlux will measure everything from sea surface temperature and marine dissolved oxygen levels to greenhouse gas emissions and soil respiration, allowing scientists to trace the full effects of microscale changes in any part of the environment. The data collected will ultimately inform climate change policy.

Sundareshwara toured Indian laboratories and government offices to drum up support for IndoFlux, and the government eventually earmarked $50 million over five years for the project. For India, the network should have benefits beyond data collection, such as providing new job opportunities in climate science and promoting interest in the field, says Sundareshwara, who also teaches at the South Dakota School of Mines and Technology. “It has a lot of economic implications and social implications beyond generating very good data.”

Photograph by Rob Hann