

About US



Environment Research

Science has documented the effects of climate change, waste and land management, and environmental pollutants on our planet, but effecting change in human behavior has proved to be more elusive. Building on a long history of policy research coupled with insights into behavioral science and experience with evaluation design, Mathematica is helping to examine the effectiveness of policies and create strategies for responding to environmental issues.

Mathematica has advanced the study of climate change through work that spans environmental health, agriculture policy, and urban economics. We have examined:

- The effects of environmental shocks, such as typhoons and hurricanes, on maternal and child health in South Asia
- How climate change affects crop yields in India and how microinsurance initiatives could improve the resilience of smallholder farmers
- The capacity of urban infrastructure in Bangladesh to support migrants from coastal areas that are threatened by rising sea levels
- Domestic land use and zoning laws that promote sustainable urban planning and green buildings
- The interplay of various monetary incentives and persuasive public communication on the use of energy-efficient lightbulbs in Brazil
- Lead-abatement efforts to promote child safety and development in low-income neighborhoods
- A statistical spatial-confounding methodology designed to examine health effects associated with air pollution exposure

EXAMPLES OF OUR WORK

Global Protocol for Community-Scale Greenhouse Gases

We are working with the Children's Investment Fund Foundation to evaluate the impact of the Global Protocol for Community-Scale Greenhouse Gases (GPC) on the efforts of cities around the world to reduce greenhouse gas emissions. Cities are a major source of emissions, so they are a critically important source of effective climate action. This evaluation will underscore how the use of a robust measurement protocol can enable cities to report emissions accurately and how these reports can, in turn, help cities to both hold themselves accountable for promised reductions and target their mitigation efforts effectively.

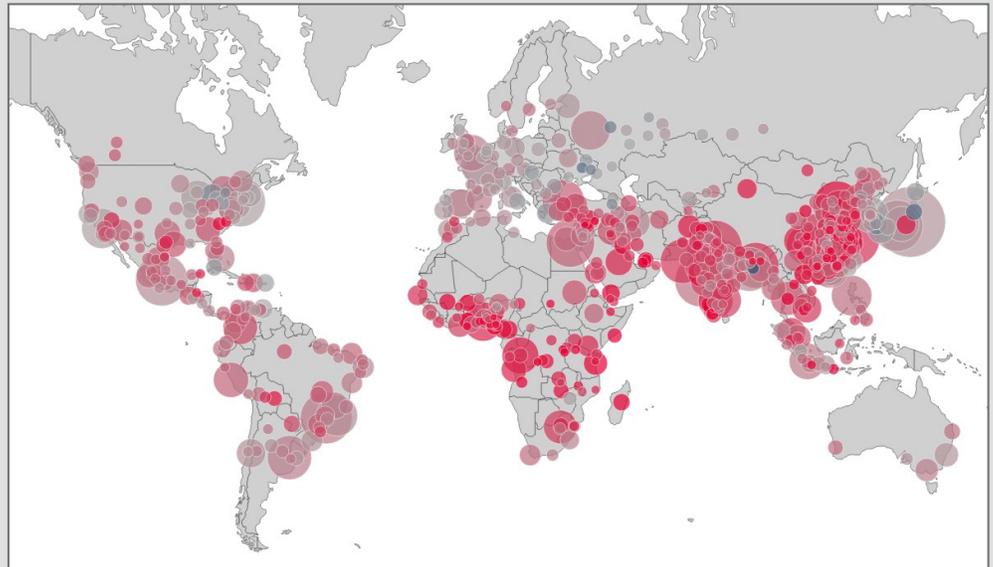
Senegal: Evaluation of the Irrigation and Water Resource Management Project

The Millennium Challenge Corporation's Irrigation and Water Resource Management Project, an infrastructure and land tenure intervention carried out in Senegal from 2011-2015, was implemented in two regions along the Senegal River Valley. The key objectives were to increase agricultural production, employment, and incomes in the Senegal River Valley; formalize farmers' land rights; and mitigate land disputes.

Mathematica's evaluation will contribute to an understanding of (1) the impact of large-scale irrigation infrastructure investments on agricultural output and household incomes; (2) the impact of formalization of land rights, perceptions of land tenure security and the strengthening of land management institutions on agricultural investment, production, and incomes; and (3) the potential of comprehensive, inclusive, and participatory land tenure formalization efforts to create sustainable long-term outcomes.

Other projects in this focus area have dealt with energy and infrastructure, agricultural productivity, and road rehabilitation.

Dramatic Growth in World Population and Urbanization



A data visualization, part of Mathematica's expanded portfolio of research to protect the environment, shows world urbanization from 1950 to 2030. It illustrates that over 60 percent of the world's population will live in cities by 2030 and suggests that cities in Africa and Asia will face a disproportionate increase in energy demands and pressures on urban resources. In China alone, 350 million people will move to cities by 2030.

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