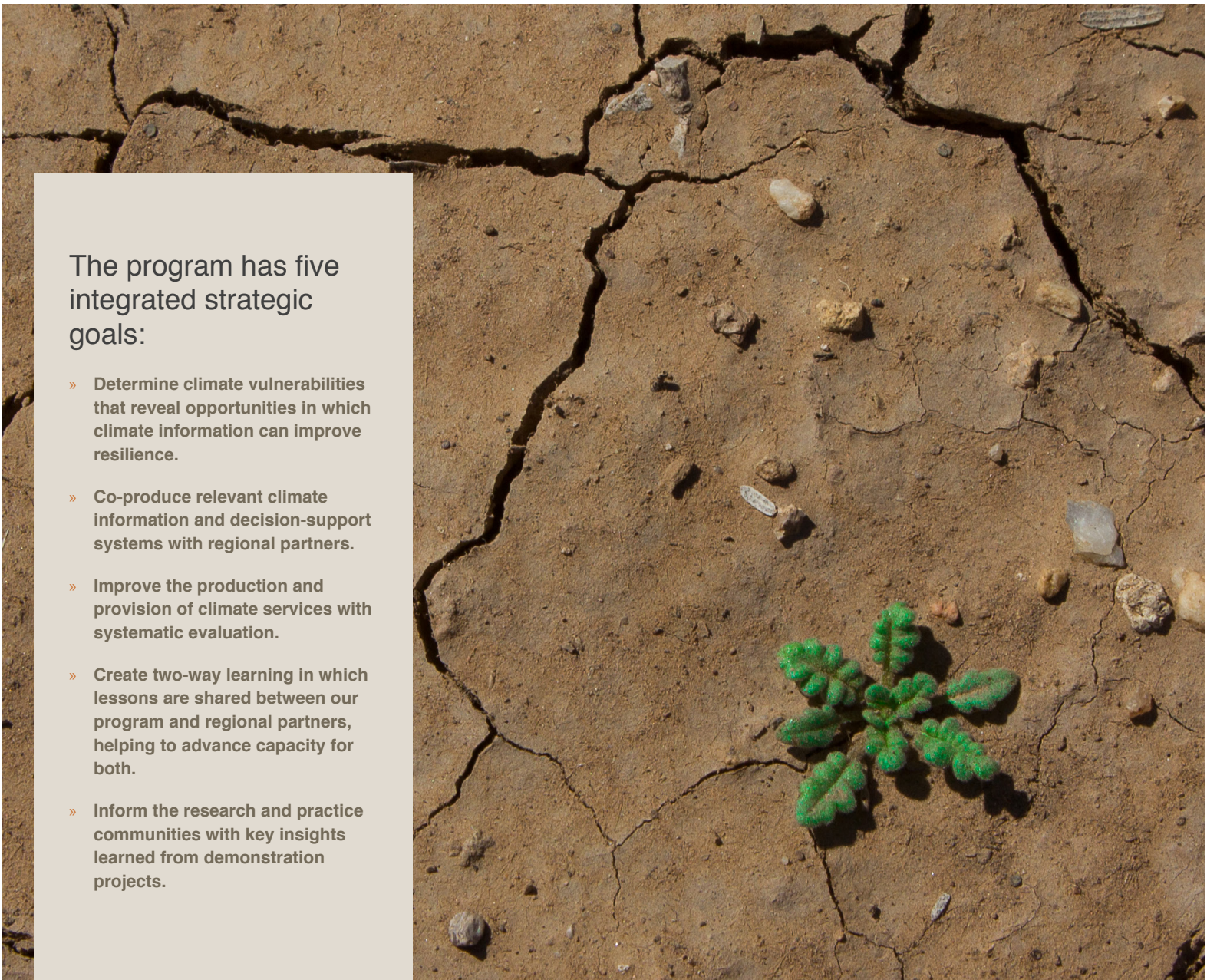


International Research Applications Program: Integrating Climate Information and Decision Processes for Regional Climate Resilience

Climate variability and longer-term changes affect many aspects of society. For example, drought can lead to large losses in agricultural productivity and employment. Frequent and intense precipitation can lead to catastrophic flooding, while higher temperatures can exacerbate dry conditions and water management challenges. Sometimes adjacent areas experience the same climate event but sustain different impacts. Therefore, a principal determinant of a region's climate vulnerability is its ability to absorb or minimize the event and the capacity to recover to a pre-event stage. The development of climate-related knowledge and information, customized to address specific decision contexts, offers promise to help society cope with and adapt to potential climate impacts.

Climate information produced independently from those who might use it is generally under-utilized or used inappropriately. Consequently, the use of climate information has not matched its potential. Collaborative processes that connect those who produce climate information to those who use it can help facilitate the incorporation of climate information into policy and practice at all levels.



The program has five integrated strategic goals:

- » Determine climate vulnerabilities that reveal opportunities in which climate information can improve resilience.
- » Co-produce relevant climate information and decision-support systems with regional partners.
- » Improve the production and provision of climate services with systematic evaluation.
- » Create two-way learning in which lessons are shared between our program and regional partners, helping to advance capacity for both.
- » Inform the research and practice communities with key insights learned from demonstration projects.

What We Do

Advance climate adaptation and enhance climate resilience of communities and sectors by co-developing place-based decision-support systems that reduce climate vulnerability and build capacity.

Our program integrates physical climate and social science expertise. It is a collaborative effort among scientists at the University of Arizona and the International Research Institute for Climate and Society (IRI) at Columbia University, working with regional partners. We work in three regions—Caribbean, West Africa, and the Indo-Gangetic Plain—and focus on challenges related to water management, coastal hazards, disasters and extreme events, agriculture and food



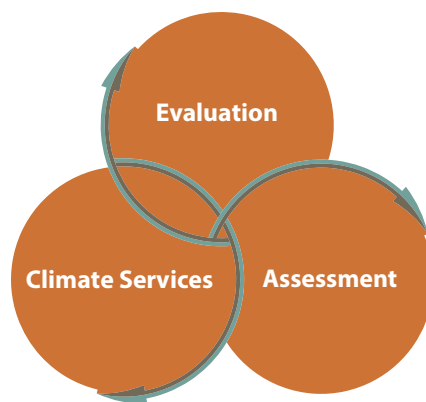
PHOTO: FRANCESCO FIONDELLA (IRI).

security, and climate-resilient development. Our program is co-funded by the U.S. National Oceanic and Atmospheric Administration (NOAA) and the U.S. Agency for International Development (USAID) as part of NOAA's International Research and Applications Program.

Our Approach

We engage in a suite of activities focused on three integrated themes of climate vulnerabilities, climate services, and evaluation in order to create a more seamless connection between climate information supply and demand.

We conduct assessments of vulnerability, which characterize who is sensitive to climatic risks, how they are sensitive, what capacities exist to adapt and cope, and in what ways climate information can help support decisions. Knowledge gained from the assessments helps inform the development of new or the modification of existing information or products ("decision support tools") that are tailored to fit user needs. At times this may direct research activities to understand, quantify, and reduce uncertainties in the climate knowledge system. After these decision-support tools are put into action, we evaluate their effectiveness, further refining the products, enhancing use, and developing best practices. The foundation of this process is cultivating working relationships with local partners who identify knowledge gaps, contextualize local challenges, and are integral in all phases of the project.



Regional Partnerships

Working with institutions and scientists in the regions creates ownership and sustainability of the projects and helps build capacity of all involved. We partner with regional and local stakeholders, including national meteorological services, climate centers, ministries of agriculture, agriculture extension services, non-governmental organizations, and universities.

Expertise

The program combines the University of Arizona's strength in human dimensions of climate changes and IRI's strength in climate science and climate risk management with regional organizations who have place deep based knowledge and diverse capabilities.

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The program is a collaboration between climate, sectoral, and social scientists from the University of Arizona and the International Research Institute for Climate and Society at Columbia University and regional and national partners in the Caribbean, Asia, and West Africa. We bridge the climate information gap and stimulate a demand driven process that provides priorities and novel ideas for useful information production. A demand-driven approach facilitates the co-production of information that can meet the direct needs of those making climate-sensitive decisions.

Our approach involves understanding the decision processes in which climate information is used and the institutional context within which information is provided, accessed, and implemented.

Our projects:

1. **Begin with a knowledge of the impacts of climate variability and change on targeted populations**
2. **Focus on vulnerability and resilience, which requires understanding the networks of institutional actors who influence adaptive capacity**
3. **Are based in user-defined challenges, which set priorities for the development of relevant climate information**
4. **Link producers and users of climate information**
5. **Evaluate the impacts of climate information interventions**

While helping solve real-world challenges, we also advance practice and theory in three fields of active research: climate vulnerability analyses, climate services, and evaluation.

<http://irap.iri.columbia.edu>

Expertise (Continued)

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