



**CARIAA**  
*Collaborative Adaptation Research  
Initiative in Africa and Asia*

# Targeting climate change hot spots:

## Introducing the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA)

While climate change is a global threat, some parts of the world are especially vulnerable due to the expected impacts on these sensitive regions and the large numbers of people who inhabit them. Climate change in these “hot spots” threatens the livelihoods of vast populations, particularly the poor.

CARIAA aims to help build the resilience of poor people to climate change by supporting a network of consortia to conduct high-calibre research and policy engagement in hot spots in Africa and Asia.

[www.idrc.ca/cariaa](http://www.idrc.ca/cariaa)



## Climate change hot spots: What's at stake?

- CARIIA focuses on three climate change hot spots that straddle countries and regions in Africa and Asia. Each hot spot is home to large numbers of poor people whose livelihoods depend on climate sensitive sectors. Every country and region is unique, but the changes underway have comparable biophysical and social implications within each hot spot.
- Some 2 billion people live in **semi-arid regions**, around half in poverty. In semi-arid parts of Africa and Asia, more frequent and prolonged droughts threaten livestock and agriculture, a major source of food and income.
- Sea level rise, changes in runoff and extreme weather events threaten **deltas** in Africa and South Asia, where some of the world's largest cities are found. While hundreds of millions of people are affected, those living in informal settlements are particularly vulnerable.
- In **glacier- and snow-fed river basins** in the Himalayas, changes in water flow and in the Asian monsoon cycle will affect some 1.5 billion people. Those living in the Ganges, Indus, and Brahmaputra floodplains are particularly vulnerable.

## The consortium approach: Linking insights across regions and disciplines

Using the hot spot as a lens for research on common challenges across different contexts, new opportunities and insights can emerge. Research on climate change adaptation also demands collaboration across disciplines. Therefore, each of the consortia that CARIIA supports brings together five institutions with a range of regional, scientific and socio-economic development expertise to explore the physical, social, economic and political dimensions of vulnerability and adaptation options. This approach enables greater South-South sharing of knowledge and experience, and encourages innovation that will strengthen adaptation and resilience among the poor.

The consortia also tackle climate change over different timeframes and across different scales—from impacts on households and villages up to regional and global policies. This approach brings fresh and more practical perspectives to the problems facing each hot spot.

## Expected results: Greater resilience through informed policy and practice

CARIIA aims to inform adaptation and resilience building strategies from local to international levels. We expect to see:

### New knowledge

The program will generate and share new knowledge on vulnerability, adaptation and resilience within hot spots. While working towards high-calibre, peer-reviewed, and co-generated research, we aim to ensure results are widely shared, in multiple formats for a range of audiences, through proactive and

ongoing outreach and a commitment to open access publication. Synthesis and comparative studies within and across hot spots are key.

### New capacities

By establishing new collaborative networks, the program will strengthen adaptation and resilience building expertise among researchers, policymakers, and practitioners. Exchanges among experts in hot spot countries, and opportunities for early career scholars will help prepare the next generation of researchers. This new capacity will ultimately enhance the resilience of highly vulnerable populations in hot spots.

### Better-informed policy and practice

Interaction with research users is integral to CARIIA's design and vision. Members of the research consortia will continuously engage with communities, practitioners and policymakers to ensure that results inform action at many scales.

## We support research that is:

- Southern driven
- Livelihoods focused
- Multi-regional
- Interdisciplinary
- Policy and practice relevant
- Open access



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# Our research projects

## In semi-arid regions:

Given the vast extent of semi-arid regions, and the number of countries affected, two research consortia will research and share knowledge on this hot spot:

### Pathways to Resilience in Semi-Arid Economies (PRISE)

This project aims to spur **climate-resilient development** in African and Asian semi-arid lands by identifying **economic threats and opportunities** resulting from climate change. Climate-resilient development reduces poverty while enhancing people's ability to adapt to climate change. The project will work with stakeholders in government, business, civil society, and regional economic organisations to research five areas: climate risk, institutional and regulatory frameworks, markets, and natural and human capital. Focusing on practical needs, the project will shed light on climate risks and opportunities, leading to better informed policies and investments for climate-resilience. Research will take place in **Burkina Faso, Kenya, Pakistan, Senegal, Tajikistan, and Tanzania**.

### Adaptation at Scale in Semi-Arid Regions (ASSAR)

So far, responses to climate threats in semi-arid regions have focused mainly on short-term solutions, such as early warning systems, famine relief, and soil and water conservation. However, long-term climate projections suggest that by mid-century, a more profound response will be needed, including the transformation

of livelihood systems. This project will enable proactive, **longer-term approaches to climate change adaptation** in semi-arid regions, while supporting the management of current risks. It draws on a number of disciplines to address the complex interactions among climate, biophysical, social, political and economic dynamics. Research on each of these aspects will be integrated through **transformative scenario planning**, involving stakeholders throughout. The project will generate credible information that decision-makers and others can use to develop robust adaptation strategies. Research will span **14 countries across Africa and Central and South Asia**, including detailed case studies in up to six of these countries.

## In deltas:

### Deltas, Vulnerability and Climate Change: Migration and Adaptation (DECCMA)

Migration is a long-standing response to environmental and economic change in deltas. While it can help households recover quickly from a range of adversity, migration can also perpetuate the vulnerability of those left behind or resettled. Its consequences are felt differently by men and women. Sea level rise and other impacts of climate change are increasing pressure on densely populated deltas in Africa and Asia. This project aims to understand adaptation choices in delta regions with a strong focus on the role of migration as an adaptation strategy, including **temporary, periodic, or permanent migration**. Working with stakeholders and key decision makers, and taking gender into account, the project will **integrate climate and socio-economic data** for each delta to assess when migration might be appropriate for the most vulnerable, compared with other adaptation options. Research focuses on four regions: the **Ganges-Brahmaputra-Meghna delta** in Bangladesh and India; the **Nile delta** in Egypt; the **Mahanadi delta** in India; and the **Volta delta** in Ghana.

## In river basins:

### Himalayan Adaptation, Water and Resilience (HI-AWARE)

This project goes beyond current research on adaptation in the Hindu Kush Himalayan region to look at **short- and long-term climate trends and adaptation strategies**, while taking into account local and seasonal impacts and responses. Through ongoing engagement with key stakeholders, research will inform adaptation strategies that increase the resilience of the poor. The project will identify

- **"critical moments"**—times of the year when specific climate risks are highest and when specific adaptation interventions are most effective;
- **"adaptation turning points"**—when current policies and management practices are no longer effective and alternative strategies have to be considered; and
- **"adaptation pathways"**—sequences of policy actions that respond to adaptation turning points by addressing both short-term responses to climate risks and longer-term planning.

Research will take place in the Indus, Ganges, and Brahmaputra river basins, with research and pilot intervention sites in **Pakistan, India, Nepal, and Bangladesh**.

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# The CARIAA research consortia are:

## In semi-arid regions:

### Pathways to Resilience in Semi-Arid Economies (PRISE)

- Overseas Development Institute, UK
- Innovation, Environnement, Développement Afrique, Senegal
- Centre for Climate Change Studies, University of Dar es Salaam, Tanzania
- Grantham Research Institute, London School of Economics, UK
- Sustainable Development Policy Institute, Pakistan

### Adaptation at Scale in Semi-Arid Regions (ASSAR)

- University of Cape Town, South Africa
- University of East Anglia, UK
- International START Secretariat, USA
- Oxfam, UK
- Indian Institute for Human Settlements, India

## In deltas:

### Deltas, Vulnerability and Climate Change: Migration and Adaptation (DECCMA)

- University of Southampton, UK
- Institute of Water and Flood Management, Bangladesh University of Technology and Engineering, Bangladesh
- Jadavpur University, India
- National Authority for Remote Sensing and Space Sciences, Egypt
- University of Ghana

## In river basins:

### Himalayan Adaptation, Water and Resilience (HI-AWARE)

- International Centre for Integrated Mountain Development, Nepal
- Bangladesh Centre for Advanced Studies
- The Energy and Resources Institute, India
- Climate Change, Alternate Energy and Water Resources Institute of the Pakistan Agricultural Research Council
- Alterra, Wageningen University and Research Centre, the Netherlands

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Email: [cariaa@idrc.ca](mailto:cariaa@idrc.ca) Visit: [www.idrc.ca/cariaa](http://www.idrc.ca/cariaa) @CollabAdapt