

The **System adaptation for OneHealth under Climate change for Vulnerable groups and Ecosystems (SOLVE)** project is a transdisciplinary initiative under the **Belmont Forum** and the **FABLE Consortium**.

SOLVE co-develops local adaptation roadmaps with societal partners to build resilient, healthy, equitable, and prosperous food and land systems. Using a suite of models, SOLVE integrates future climate extreme risks into long-term planning and promotes a OneHealth approach to better understand and address the complex interactions between people and nature.

## THE CHALLENGE

Ongoing climate change has led to severe heat waves, erratic monsoons, frequent droughts, and recurrent floods, disrupting crop cycles and reducing yields of staples.

Climate change impacts exacerbate poverty, food insecurity, and health risks owing to lower yields and water shortages, and quality degradation.

Although farmers are adopting climate-smart practices, systemic gaps in infrastructure, extension services, and healthcare access persist.

The main challenges for farmers are:

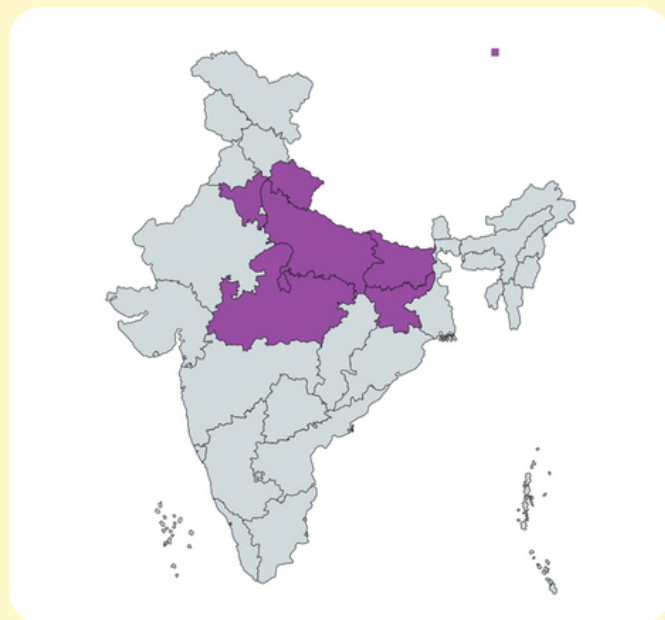
- Rising temperatures and severe heat waves.
- Erratic rainfall coupled with recurring floods and droughts.
- Lower yields and increased health risks.



India

## FOCUS AREAS

The Indo Gangetic Basin (IGB) comprises of 6 Indian states - Bihar, Haryana, Jharkhand, Madhya Pradesh (MP), Uttarakhand, and Uttar Pradesh (UP). It is one of the most fertile and productive agricultural regions and is home to some of India's most climate-vulnerable populations.



Bihar, Jharkhand, and parts of UP and Uttarakhand experience a double-whammy of both drought and flooding. While parts of this entire region are prone to erratic rainfall and intensifying heat stress.

The majority of the farmers being poor, the average land holding ranges between 0.4 to 2.2 hectares among the states. The main crops cultivated include rice, wheat, pulses, sugarcane, and fruits.

Female farmers, landless laborers, children and the elderly face higher health risks, food insecurity, and economic distress.

## STAKEHOLDERS & PROCESS

Activities under this project will be coordinated by the Indian Institute of Management Ahmedabad (IIMA) with the Indian Institute of Public Health Gandhinagar (IIPH). Think tanks working on the nexus of food and water systems (IWMI and IFPRI) will also be engaged in the program and research processes.

### Stakeholders:

This project will involve government bodies, including the Ministry of Agriculture and Farmers Welfare (MoAFW), the Central Groundwater Board, the Ministry of Jal Shakti, private organizations, and NGOs at the forefront of clean water and healthy diets in the region.



### Methods developed for the study:

- Conduct farm-household surveys to understand the adaptation strategies currently being practiced in farmers' fields.
- Conduct surveys on dietary patterns, sources of food intake, and water use patterns.
- Assessment of alternative healthier diet impacts and water quality through secondary analysis.
- Connecting climate change impacts with health risks through food security and diet patterns.
- Explore climate adaptation scenarios and model their potential impacts on food and land-use systems using the FABLE Calculator.



## IMPACT

### Who will benefit?

Smallholder farmers across IGB, food distributors and retailers, local supply chain workers, local governance bodies, community organizations, and rural households, especially women, children, and marginalized groups.

### How will they benefit?

- Farm-level and dietary intake data will generate actionable insights that link climate risks, nutrition, and access to clean water.
- Evidence-based strategies for climate adaptation, resilient farming, and sustainable water use will be shared.
- Awareness through stakeholder meetings and co-creation workshops on how healthier diets and improved water quality can reduce malnutrition, chronic illnesses, and waterborne diseases.
- Scenario modeling will provide a clear understanding of trade-offs and potential benefits of adaptation strategies.
- Cross-sector collaboration to inform policy development and scale up successful interventions.

The India case study is led by the [Indian Institute of Management Ahmedabad \(IIMA\)](https://www.iima.ac.in/). To get involved, contact [ranjang@iima.ac.in](mailto:ranjang@iima.ac.in); [Vartika.Singh@cgjar.org](mailto:Vartika.Singh@cgjar.org); [ankitsaha@iima.ac.in](mailto:ankitsaha@iima.ac.in).

This case study was approved under the Belmont Forum CRA "Climate, Environment, and Health 2" (2023). Due to recent budget cuts, the team is now seeking alternative support, in coordination with the Belmont Forum.