



Building Systemic Resilience Against Climate Variability and Extremes, or **ClimBeR**, is one of the Research Initiatives in CGIAR's new research portfolio that will deliver science and innovation to transform food, land, and water systems in a climate crisis. ClimBeR aims to transform the climate adaptation capacity of food, land, and water systems in Morocco and five other countries, ultimately increasing the resilience of smallholder production systems to withstand severe climate change effects like drought, flooding and high temperatures.

Challenge

Climate variability and extremes are having significant, adverse impacts in low- and middle-income countries - and these impacts will only grow worse. Food and agricultural systems face particular risk, with threats of economic and employment losses and investment uncertainty. Smallholder farmers, and particularly women and youth, are suffering setbacks in efforts to improve livelihoods, while poverty and social tensions grow.

The demand has shifted from understanding climate change impacts to designing innovations and directing financial flows to achieve ambitious climate and food systems targets. Adaptation solutions must go beyond technology and consider social, environmental, and economic consequences as well - isolated interventions are no longer enough. In Morocco, these adaptation solutions are needed to address threats of impacts from climate extremes such as droughts and high temperatures. Working to ensure transformation at the system level will enhance resilience, productivity, and equity.

Achieving ClimBeR's Objectives

Working closely with partners at the local, national, regional, and global levels, ClimBeR's bold and unique approach tackles vulnerability to climate change at its roots using a transformative adaptation framework.

The work builds on CGIAR's unparalleled track record of agricultural research for development, including ten years of work on climate change and agriculture under the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), with activities focusing on the following areas:

Reducing risk for producers' livelihoods and in value chains:

Agriculture, especially smallholder, rain-fed agriculture practiced by millions of farmers, has always been susceptible to climatic-induced risk in production and post-harvest value chains, but this risk is not well understood. Researchers will use agricultural risk management, climate-smart innovations, and digital services to reduce the impact of variable weather and extreme events on smallholder farmers. Innovations include:

CLIMBER AT A GLANCE

PRIMARY CGIAR IMPACT AREA: Climate Adaptation and Mitigation

FOCUS COUNTRIES: Guatemala, Kenya, Morocco, Philippines, Senegal, Zambia

PARTNERS: 130

WORKS TOWARD SUSTAINABLE DEVELOPMENT GOALS:



ADDRESSES UN FOOD SYSTEMS SUMMIT ACTION TRACKS:

Nutritious Food, Nature-Positive Production, Resilience

- An agricultural risk management strategy that prioritizes insurable climatic risks;
- Co-developed tools that provide digitally enabled agricultural climate services;
- A climate risk profiling system that identifies key agricultural risks and targeted risk mitigation solutions; and
- A production system typology based on how climate risks impact nutrition, to better prioritize and target investments.

Early work in Morocco in this area will focus particularly on building the climate risk profiling system and developing the production system typology.

Understanding climate security risks and identifying paths to climate-resilient peace:

Climate change threatens global security, as famine, floods, drought, and other extreme events destabilize countries and exacerbate inequity. Climate security solutions will require identifying paths to climate-resilient peace and addressing inequitable access to natural resources. ClimBeR researchers and partners will respond to the challenge posed by a lack of robust, localized, and policy-relevant evidence about these risks with the development of:

- Climate security proofing guidelines to help conduct localized assessments, integrate them into programmatic

planning, and enhance conflict sensitivity of climate adaptation and agricultural policies;

- A step-by-step climate security policy toolkit to help national and local policymakers better connect climate, agriculture, and peace programming to enhance climate adaptation strategy effectiveness;
- A climate security index to monitor climate security risks; and
- A climate security observatory which will support regional, national, and sub-national-level decision-making.

Ensuring policymakers have the evidence needed to develop urgently needed, holistic and context-specific policies:

Many low- and middle-income countries are climate hotspots, highly exposed to climate change. Farming communities in these countries already face growing water scarcity and climate extreme events, with increased risks in the future. Researchers, partners, policymakers, and stakeholders will work together to untangle complexities and develop holistic agriculture, nutrition, and trade policies that support climate-resilient food systems through:

- Developing an integrated, evidence-based framework to identify policy pathways to climate-resilient, food- and nutrition-secure future for Africa; and
- Identifying policy pathways to mainstream initiatives or practices that disrupt current unsustainable structures and can transform food systems.

Also, in Morocco, the Climate-Smart Systems Solutions and Scaling (C4S) innovation will be coordinated by ICARDA in partnership with the BRIDGE consortium and other regional and local partners. It will identify context-specific climate adaptation options that have a systemic impact in the climate change hotspots. Adaptation interventions include:

- Managing water resources effectively based on biophysical modeling at a variety of scales;
- Identifying context-specific crop diversification through a target population of environments approach to climate-smart crop improvement and management; and
- Enabling strategic decision-making based on co-constructed climate- and water-smart decision tools and integrated bioeconomic modeling.

These actions will be implemented in a multiscale and multidisciplinary manner involving stakeholders to facilitate systemic transformation at the national scale.

Building capacity for policies that bring together local needs and available tools to enable governance for resilience:

Governance built from the bottom up will reduce risk, ensure solutions are applicable, and draw out “champions of change” who can advocate for local investment as well as empowerment and inclusion of all stakeholders. To support this, ClimBeR researchers and partners will develop:

- A governance model that looks across levels, scales, and sectors to help organize decision-making that links adaptation at the local level to policy processes at the national level;
- Indicators that incorporate gender and social equity to ensure recommendations consider the needs of all groups and leave no one behind;
- A dashboard that brings together global-level data and community-identified needs to provide policymakers with informed options; and
- A platform to facilitate coordination for early warning, early action, and early finance in the face of extreme climate events.

Early work in Morocco in this area will focus on the creation of the dashboard.

Scaling climate finance: Finance is a major constraint for climate adaptation, particularly in the agriculture sector. Unlocking climate finance and creating and scaling evidence-based pipelines of investment opportunities are vital to achieving food system transformation goals. ClimBeR researchers and partners will develop innovative mechanisms to increase farmers’ access to finance at the local level, while helping policymakers identify new opportunities at the national level, aiming to mobilize US\$30 million in new investments by 2024 that support building smallholder farmer resilience.

Ensuring gender and social equity: Climate risks unevenly impact people based on social and economic inequalities. Transformative adaptation is not possible without special, deliberate attention to gender and social equity: a climate-resilient, nutrition-secure future will require gender-sensitive policy, ensuring grassroots voices are heard and women, youth, and marginalized groups are included. ClimBeR researchers and partners will embed gender and social equity approaches into work across the Initiative, working to design interventions tailored to farmers’ diverse needs, while avoiding maladaptation.



ClimBeR: Building Systemic Resilience Against Climate Variability and Extremes

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CGIAR is a global research partnership for a food-secure future. CGIAR science is dedicated to transforming food, land and water systems in a climate crisis. Its research is carried out by 13 CGIAR Centers/Alliances in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations, academia, development organizations and the private sector. www.cgiar.org

We would like to thank all funders who support this research through their contributions to the CGIAR Trust Fund: www.cgiar.org/funders.

To learn more about this Initiative, please visit: on.cgiar.org/ClimBeR.

To learn more about this and other initiatives in the CGIAR Research Portfolio, please visit www.cgiar.org/cgiar-portfolio.

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