



Transformative adaptation in practice. How a solar-powered borehole in the Hanzila community in Monze District in Southern Zambia is creating equitable and community-led climate action.

Credit: ClimBeR

CGIAR Research Initiative on **Climate Resilience**

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The Artificial Intelligence (AI) software ChatGPT was used to support the editing of parts of this report, specifically to improve clarity, grammar, and style. ChatGPT was not used to generate the content of the report. All edits made with AI assistance were reviewed and validated by the authors to ensure accuracy, coherence, and alignment with the original intent.

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CGIAR Technical Reporting 2024

CGIAR Technical Reporting has been developed in alignment with [CGIAR’s Technical Reporting Arrangement](#). This annual report (“Type 1” Report) constitutes part of the broader CGIAR Technical Report. Each CGIAR Research Initiative/Impact Platform/Science Group Project (SGP) submits an annual “Type 1” Report, which provides assurance on progress towards end of Initiative/Impact Platform/SGP outcomes.

As 2024 marks the final year of this CGIAR Portfolio and the 2022-24 business cycle, this Type 1 Report takes a dual approach to its analysis and reporting. Alongside highlighting key achievements for 2024, the report also provides a cumulative overview of the 2022-24 business cycle, where relevant. This perspective captures the evolution of efforts over the three-year period. By presenting both annual and multi-year insights, the report underscores the cumulative impact of CGIAR’s work and sets the stage for the transition to the 2025-30 Portfolio.

The 2024 CGIAR Technical Report comprises:

- **Type 1 Initiative, Impact Platform, and SGP Reports:** These annual reports present progress towards end of Initiative/Impact Platform/SGP outcomes and provide quality-assured results accessible via the [CGIAR Results Dashboard](#).
- **Type 3 CGIAR Portfolio Practice Change Report:** This report provides insights into CGIAR’s progress in Performance Management and Project Coordination.
- **Portfolio Narrative:** Drawing on the Type 1 and Type 3 reports, as well as data from the CGIAR Results Dashboard, the Portfolio Narrative synthesizes insights to provide an overall view of Portfolio coherence. It highlights synergies, partnerships, country and regional engagement, and collective progress.
- **Type 2 CGIAR Contributions to Impact in Agrifood Systems: evidence and learnings from 2022 to 2024:** This report offers a high-level summary of CGIAR’s contributions to its impact targets and Science Group outcomes, aligned with the Sustainable Development Goals (SDGs), for the three-year business cycle.

The Portfolio Narrative informs the 2024 CGIAR Annual Report – a comprehensive summary of the organization’s collective achievements, impacts, and strategic outlook.

Elements of the Type 2 report are integrated into the [CGIAR Flagship Report](#), released in April 2025 at [CGIAR Science Week](#). The Flagship Report synthesizes CGIAR research in an accessible format designed specifically to provide policy- and decision-makers at national, regional, and global levels with the evidence they require to formulate, develop, and negotiate evidence-based policies and investments.

The diagram below illustrates these relationships.

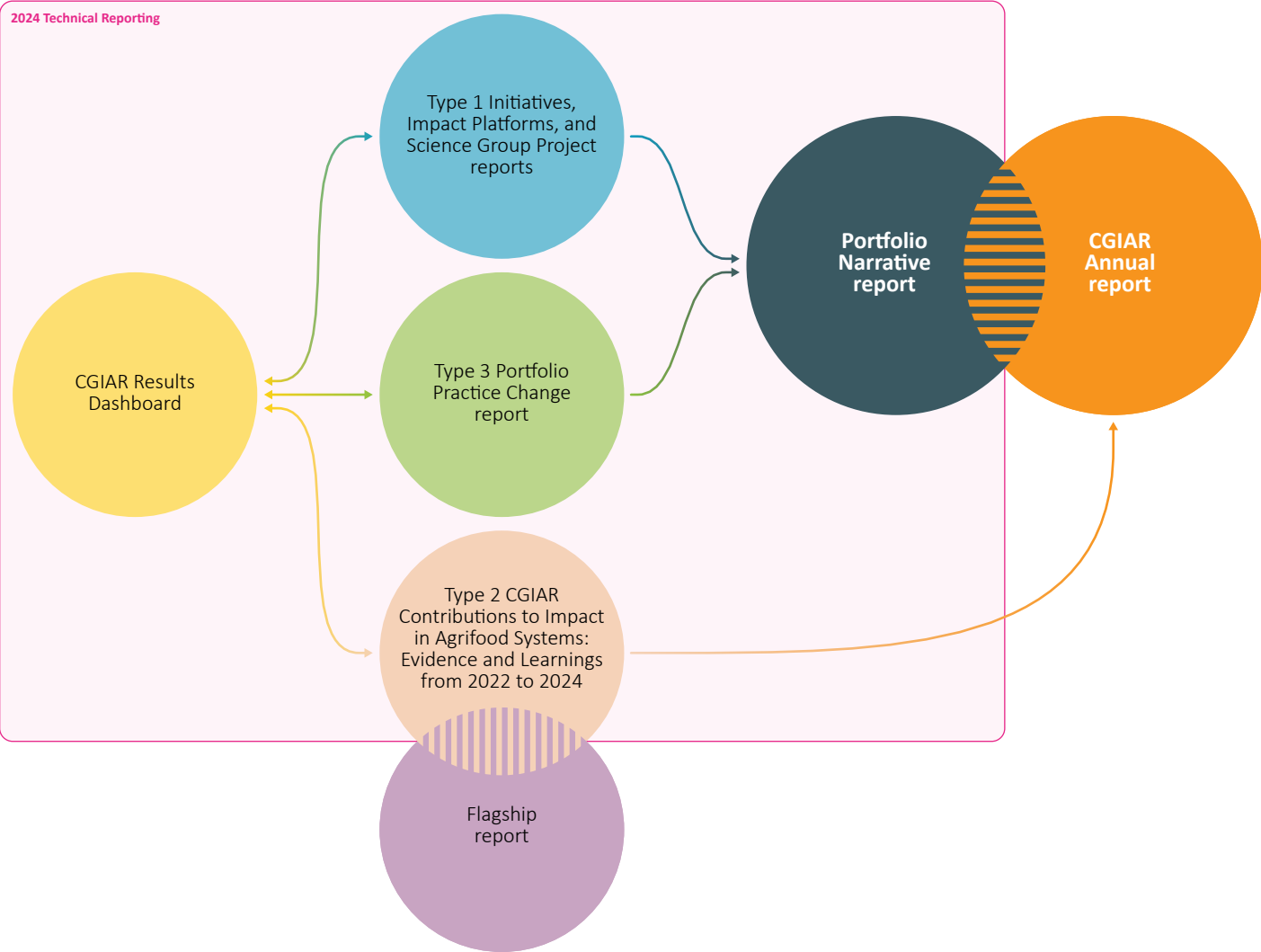


Figure 1. CGIAR’s 2024 Technical Reporting components and their integration with other CGIAR reporting products.

Section 1: Fact sheet, executive summary and budget

Initiative name	ClimBeR: Building Systemic Resilience Against Climate Variability and Extremes
Initiative short name	Climate Resilience
Initiative Lead	Evan Girvetz (e.girvetz@cgiar.org)
Initiative Co-lead	Jon Hellin (j.hellin@cgiar.irri.org)
Science Group	Systems Transformation
Start – end date	01 January 2022 – 31 December 2024
Geographic scope	Regions Central and West Asia and North Africa · East and Southern Africa; Latin America and the Caribbean · Southeast Asia and the Pacific · West and Central Africa Countries Guatemala · Kenya · Morocco · Philippines · Senegal · Zambia
OECD DAC Climate marker adaptation score ¹	Score 2: Principal The activity is principally about meeting any of the three CGIAR climate-related strategy objectives—namely, climate mitigation, climate adaptation, and climate policy, and would not have been undertaken without this objective..
OECD DAC Climate marker mitigation score ¹	Score 1: Significant The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives—namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.
OECD DAC Gender equity marker score ²	Score 1B: Gender responsive On the top of the minimum requirements for 1A, the Initiative/project includes at least one explicit gender equality outcome, and the Initiative/project team has resident gender expertise or capacity. The Initiative/project includes indicators and monitors participation and differential benefits of diverse men and women.
Website link	https://www.cgiar.org/initiative/climate-resilience/

¹ The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) markers refer to the OECD DAC [Rio Markers for Climate](#) and the [gender equality policy marker](#). For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal.

² The CGIAR Gender Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.

These scores are derived from [Initiative proposals](#), and refer to the score given to the Initiative overall based on their proposal.

EXECUTIVE SUMMARY

The call for climate action is now more urgent than ever. From prolonged drought to flash floods and other climate extremes, low- and middle-income countries are especially vulnerable to climate change. Their agrifood systems are reliant on smallholder farmers who lack the resources and adaptive capacity to face the brunt of severe climate impacts. Transforming the adaptive capacity of food, land, and water systems is key to building resilience, especially for those most vulnerable.

From 2022 to 2024, the CGIAR Research Initiative on Climate Resilience (ClimBeR) utilized a transformative adaptation approach to build smallholder resilience through science in action. The Initiative delivered bundled climate services to more than 2.8 million farmers; shaped local, national, and regional climate policies, recording more than 45 policy change outcomes; and provided technical assistance to enable partners to access US\$754 million in climate finance, surpassing its End of Initiative targets.

While most of ClimBeR’s results were achieved in its six focus countries of Guatemala, Kenya, Morocco, the Philippines, Senegal, and Zambia, there were also spillovers, such as demand-driven interventions, in Sri Lanka, Madagascar, and Uganda.

Key highlights include:

- ClimBeR’s [climate services](#) reached more than 2.8 million smallholder farmers, 49 percent of whom were women, in five of its focus countries (Kenya, Senegal, Zambia, Guatemala, and the Philippines), in collaboration with other CGIAR Research Initiatives and flagship bilateral projects including the CGIAR Research Initiatives on Livestock and Climate and on Diversification in East and Southern Africa, and Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA).
- ClimBeR’s [social equity framework](#) was developed in collaboration with the Nordic Africa Institute and Livestock and Climate Initiative and can be used both within CGIAR and beyond to embed social equity within activities and build synergies.

- A situational analysis was conducted to support climate finance investments that identified gaps in national and local strategies for climate adaptation, strengthening alignment with financial commitments in the Green Climate Fund (GCF) and the Global Environment Facility.
- Support to the development of a GCF concept note in Kenya and proposal in Uganda submitted for Board approval.
- [Submissions to the UNFCCC process](#) advocated for transparency, an increased focus on adaptation finance, and the importance of defining climate finance.
- Approximately 4,500 farmers (39 percent of whom were women) were [trained](#) to use [risk-contingent credit](#) (RCC) in Kenya and Ethiopia.
- [Seasonal climate risk profiles were developed for Kenya, Zambia, and Senegal](#), which were enhanced to cater to country-specific applications and better address the needs of agricultural stakeholders and policymakers.
- [Integrated Future Estimator for Emissions and Diets](#) modeling informed discussions of the Comprehensive Africa Agriculture Development Programme (CAADP), shaping interventions for climate resilience.
- [State-of-the-art evidence](#) on the root causes of conflict and fragility increased capacity and knowledge, strengthened the climate security agenda of its strategic partners, and informed policies and investments.
- In Sri Lanka, ClimBeR’s collaboration with the CGIAR Research Initiative on Fruit and Vegetables for Sustainable Healthy Diets resulted in an agroclimatic advisory tool—CultivateX—that was integrated into [GeoGoviya](#), a national digital agriculture platform, to reach 1.8 million farmers, enhancing their understanding of climate variability and promoting climate-smart agronomic practices.
- ClimBeR’s partnership with the Centre for Minority Rights Development (CEMIRIDE) in Kenya enhanced [Indigenous peoples’ engagement in international climate policies](#) through the [Voices of Change video series](#), and together with the Initiative’s Disruptive Seeds coalition, contributed to the 2024 Livestock Bill, which aims to secure pastoralists’ rights to Indigenous livestock breeds.

ClimBeR’s science, innovations, and stakeholder engagement played a significant role in ensuring that bundled climate services reach vulnerable farmers; policymakers use the Initiative’s science and innovations to inform and shape local, regional, and national adaptation policies that help reduce climate-related risks, including climate security risks; there is a more explicit focus on and context-specific understanding of social equity that allows for greater participation of the most vulnerable, while mitigating the dangers of maladaptation; and partners were supported in both accessing and investing in climate finance to build the climate resilience of women, youth, Indigenous groups, and vulnerable smallholder farmers.

While the Initiative came to an end in 2024, its research and innovations, key results, progress toward outcomes, and strategic partnerships will continue through the CGIAR Climate Action Science Program to ensure sustainable, locally led, inclusive climate action to enhance the resilience of those most vulnerable.

	2022	2023	2024
	▼	▼	▼
PROPOSAL BUDGET ▸	\$14.98M	\$14.98M	\$15.04M
APPROVED BUDGET ¹ ▸	\$9.48M	\$9.14M ²	\$8.66M ²

¹ The approved budget amounts correspond to the figures available for public access through the [Financing Plan dashboard](#).
² These amounts include carry-over and commitments.

Section 2: Progress towards End of Initiative outcomes

Initiative-level theory of change diagram

This is a simple, linear, and static representation of a complex, non-linear, and dynamic reality. Feedback loops and connections between this and other Initiatives’ theories of change are excluded for clarity.

RESEARCH QUESTIONS

- How can gender-sensitive, socially inclusive agricultural climate services and innovations address adoption barriers, enhance protective food production, and mitigate climate risks for smallholders?
- How can climate security-sensitive approaches mitigate climate change as a “threat multiplier” by addressing socioeconomic risks, fostering resilience, and promoting peace through localized solutions, adaptive governance, and investments?
- How can integrated multiscale approaches that blend top-down and bottom-up initiatives drive climate-resilient, socially equitable agricultural transformations through evidence-based policies, investments, and capacity building?
- How can polycentric governance, adaptation instruments, and integrated strategies enhance resilience, social equity, and systemic transformation across agricultural, food, and water systems while empowering vulnerable groups?

SPHERE OF CONTROL

WORK PACKAGES

WORK PACKAGE 1

DE-RISK: Reducing risk in production system-linked livelihoods and value chains at scale.

WORK PACKAGE 2

Climate Security: Building systemic resilience through recognizing the relationships among climate, agriculture, security, and peace.

WORK PACKAGE 3

Policy Pathways: Developing adaptation instruments to inform policy and investments.

WORK PACKAGE 4

Governance4Resilience: Multiscale governance for transformative adaptation.

Caption: A participatory appraisal of climate-related security risks and adaptive capacities.

Credit: Leo Medina, CGIAR

SPHERE OF INFLUENCE

END-OF-INITIATIVE OUTCOMES

END-OF-INITIATIVE OUTCOME 1

- ▶ Bundled climate services reach vulnerable farmers.

END-OF-INITIATIVE OUTCOME 2

- ▶ ClimBeR products inform and/or shape policies or investments to strengthen agricultural resilience.

END-OF-INITIATIVE OUTCOME 3

- ▶ Investments enabled or supported through ClimBeR's partnerships and technical assistance to build systemic resilience.

ACTION AREA OUTCOMES

SYSTEMS TRANSFORMATION

- 1 • Implementation partners (e.g. NARES, NGOs, private companies) actively support dissemination, uptake, and implementation of CGIAR innovations.
- 2 • Research institutions, government analytical units, and scaling partners in the Global South have improved knowledge, skills, access to data, capacity to develop tools, innovations, and undertake research to support transformation of food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate objectives.
- 3 • National and sub-national government agencies use CGIAR research results to design or implement strategies, policies and programs which have the potential to transform food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate resilience objectives.
- 4 • National and local multi-stakeholder platforms are strengthened to become more effective and sustainable, addressing development trade-offs and generating strategies for effective food, land, and water systems transformation.
- 5 • Global and regional institutions, such as funding agencies, international organizations, and coordinating bodies use CGIAR research evidence in the development of strategies, policies, and investments to drive sustainable transformation of food, land, and water systems contributing to livelihood, inclusion, nutrition, environmental and climate resilience objectives.
- 6 • CGIAR partners develop and scale innovations that contribute to the empowerment of women and other social groups in food, land, and water systems.

SPHERE OF INTEREST

IMPACT AREAS

NUTRITION, HEALTH & FOOD SECURITY

- 1 • Reduce cases of foodborne illness (600 million annually) and zoonotic disease (1 billion annually) by one third.
- 2 • End hunger for all and enable affordable health diets for the 3 billion people who do not currently have access to safe and nutritious food.

POVERTY REDUCTION, LIVELIHOODS & JOBS

- 1 • Lift at least 500 million people living in rural areas above the extreme poverty line of US \$1.90 per day (2011 PPP).
- 2 • Reduce by at least half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.

GENDER EQUALITY, YOUTH & SOCIAL INCLUSION

- 1 • Close the gender gap in rights to economic resources on, access to ownership of, and control over land and natural resources, for more than 500 million women who work in food, land, and water systems.
- 2 • Offer rewardable opportunities to 267 million young people who are not in employment, education, or training.

CLIMATE ADAPTATION & MITIGATION

- 1 • Equip 500 million small-scale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems.
- 2 • Turn agriculture and forest systems into a net sink for carbon by 2050, with emissions from agriculture decreasing by 1 Gt per year by 2030 and reaching a floor of 5 Gt per year by 2050.
- 3 • Implement all National adaptation Plans (NAP) and Nationally Determined Contributions (NDC) to the Paris Agreement.

ENVIRONMENTAL HEALTH & BIODIVERSITY

- 3 • Maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed genebanks at the national, regional, and international levels.
- 4 • Stay within planetary and regional environmental boundaries: consumptive water use in food production of less than 2500 km³ per year (with a focus on the most stressed basins), zero net deforestation, nitrogen application of 90 Tg per year (with redistribution towards low-input farming systems) and increased use efficiency, and phosphorus application of 10 Tg per year.



Discussing Risk Contingent Credit with smallholder farmers in Mumbwa District, Zambia.
Credit: Anne G.Timu

Summary of progress against the theory of change

In the last three years, ClimBeR surpassed all its End of Initiative outcomes (EOIOs). The Initiative played a significant role in shaping a total of 19 policies at the local, national, regional, and global levels. This includes 15 policies in eight countries and one each in East Africa, Central America, the African Union, and the United Nations. The policies informed by ClimBeR science and innovation resulted in a total of 45 policy changes across legal instruments (2), policies and strategies (36), and programs, budgets, and investments (7).

ClimBeR also delivered bundled climate services—such as forecasts and agro-advisories—to more than 2.8 million farmers across five of its focus countries, over 40 percent of whom were women, far exceeding the initial target of 300,000. These services were disseminated through multiple channels, including [Shamba Shape Up](#) in Kenya, [Munda Makeover](#) in Zambia, [Climate +](#) in the Philippines, [local technical agroclimatic committees](#) (LTACs) in Guatemala, as well as [nutrition- and gender-targeted climate information services](#) in Senegal.

Between 2022 and 2024, ClimBeR's technical assistance supported partners to access US\$754 million in climate finance, surpassing the US\$30 million target. This included US\$523 million through GCF processes in Kenya, Senegal, and the Philippines, with an additional US\$231 million supported for Uganda and Madagascar.

The Initiative produced strong evidence on transformative adaptation, tackling the root causes of vulnerability and empowering local communities to build climate resilience. ClimBeR scientists assessed [gendered credit constraints and the adoption of RCC in Kenya](#), expanding efforts to Ethiopia to help smallholder farmers access climate finance. Through these efforts, approximately 4,500 farmers—39 percent of whom were women—were trained in RCC usage. Impact assessments revealed that empowered women are more likely to make decisions on farm investments and adopt RCC. ClimBeR scientists also identified the best practices for participatory program design for climate security, supporting local communities in creating climate adaptation strategies that promote sustainable peacebuilding.

Over the past three years, ClimBeR developed a total of 36 innovations—50 percent technological, 25 percent policy or organizational, 19 percent capacity development, and 6 percent others—which were actively adopted by farmers, government ministries, and nongovernmental organizations (NGOs). The Initiative also produced more than 595 science-based knowledge products across five CGIAR Centers.

ClimBeR trained approximately 6,700 stakeholders on key topics such as climate finance, climate security, geographic information systems for climate-risk mapping, and index insurance—with women making up more than 22 percent of participants. These efforts were concentrated in ClimBeR's six focus countries—Guatemala, Kenya, Morocco, the Philippines, Senegal, Zambia, and Sri Lanka, one of its spillover countries—while also generating positive spillover effects across regions.

In Guatemala, ClimBeR supported the Meteorological Department (INSIVUMEH) in developing its [National Framework on Climate Services](#), guiding the dissemination of climate information to farmers nationwide. This effort reached more than 500,000 farmers (47 percent women) through radio and more than 35,000 farmers (51 percent women) via LTACs, in collaboration with other CGIAR Initiatives such as the CGIAR Research Initiatives on AgriLAC Resiliente and on Livestock and Climate.

In Kenya, ClimBeR's climate security research helped the Ministry of Environment, Climate Change, and Forestry [integrate climate security into Kenya's National Climate Change Adaptation Plan \(NCCAP 2023–2027\)](#). ClimBeR also partnered with Equity Bank Kenya to scale RCC and collaborated with the Ministry of Agriculture and Livestock Development, the national Climate-Smart Agriculture Multi-Stakeholder Platform, and Jomo Kenyatta University of Agriculture and Technology (JKUAT) to develop a climate, peace, and security in agriculture [training course](#).

In Morocco, ClimBeR scientists developed and promoted the [multiscale polycentric governance \(MPG\) innovation framework](#) with the Directorate of Strategy and Statistics to support the integration of young entrepreneurs into the olive and milk value chains under

Morocco’s Green Growth Plan. A new subnational multicriteria, multistakeholder policy assessment framework was also used in the Saiss Plain to cocreate future scenarios for conservation agriculture and agroecology.

In Zambia, ClimBeR innovations played a key role in shaping policy action. In 2024, ClimBeR contributed to the enactment of [Zambia’s Green Growth Strategy through the codesign and implementation of action plans and climate security investments](#). The Ministry of Agriculture adopted the [Zambia Drought Management System](#) and [AWARE](#) to manage drought risks, enabling provincial and district authorities to improve anticipatory action planning and community disaster preparedness. [The integrated Future Estimator for Emissions and Diets](#) model’s evidence on nutrition security and climate extremes informed discussions on the 2025 Agricultural National Budget, shaping climate resilience interventions aligned with CAADP targets. ClimBeR’s [Climate Smart Governance Dashboard](#) supported stakeholders in coordinating programs across sectors, guiding resource planning, climate adaptation prioritization, and long-term resilience measures aligned with Zambia’s National Adaptation Plan.

In the Philippines, ClimBeR scientists [partnered](#) with the Philippine Rice Research Institute and the Philippine Crop Insurance Corporation to codesign an [area-based yield index insurance](#). Together with the Philippine government, ClimBeR also codeveloped the [Rice Crop Manager Advisory Service \(RCMAS\) Climate+](#), a digital tool used by the Department of Agriculture to deliver climate-adjusted crop and nutrient recommendations to more than 4,000 farmers. Through [Climate Smart Mapping](#), Local Climate Change Action Plans were developed in Guinayangan, Quezon; Canaman, Camarines Sur; and Pamplona, Camarines Sur—drawing directly on ClimBeR’s science to strengthen climate resilience at the local level. This foundation of work and partnerships established by ClimBeR has the potential to be scaled to benefit 2.4 million farmers with bundled risk management solutions.

In Senegal, [gender-specific climate and nutrition information services](#) reached more than 920,000 farmers—60 percent of whom were women—building on the farmer networks developed by the Adaptation and Valorization of Entrepreneurship in Irrigated

Agriculture (AVENIR) project. ClimBeR’s cross-scale evidence on crop diversification and water use efficiency was also shared in science-policy dialogues hosted by the Climate-Smart Agriculture Platform and the Ministry of Agriculture, Food Sovereignty, and Livestock. These dialogues fostered collaborative climate resilience research on key crop value chains and accelerated agricultural adaptation strategies.

ClimBeR surpassed all of the targets for its EOIOs by working in



*In the Philippines’ rice-producing regions, ClimBeR’s bundled climate services are helping farmers become climate-resilient.
Credit: IRRI/ClimBeR*

partnership at multiple levels, delivering demand-driven and focused country-relevant science and innovation, enhancing evidence-based climate policies, addressing climate security risk, promoting inclusive governance for climate action, and providing access to climate finance to reduce climate risk for smallholders and vulnerable communities. Through a systems approach that focused on social equity and inclusion, the delivery of bundled solutions, and enhanced access to adaptation finance, the Initiative achieved transformative adaptation and built smallholder resilience, fueled by effective climate science that informed relevant policy action and driven by strategic and strengthened partnerships.

Progress against End of Initiative Outcomes

This infographic provides a concise summary of the Initiative’s progress toward achieving its Theory of Change End-of-Initiative outcomes for the 2022-2024 period. By drawing on reported results, it offers a comprehensive synthesis of progress made against the established outcome targets, highlighting the Initiative’s overall impact and key achievements at the conclusion of this three-year cycle.



EOIO 1

Bundled climate services developed by the Initiative reach at least 300,000 vulnerable farmers, at least 30 percent of whom are women, in six focal countries by 2024.

Bundled climate services, including weather forecast, climate resilience agro-advisories, credit, and crop insurance, reached more than 2.8 million farmers (49 percent women) in five countries from 2022 to 2024. In Kenya and Ethiopia, 5,692 farmers (36 percent women) were reached through RCC trainings. In Kenya, Shamba Shape Up broadcasted bundled climate information and agro-advisories to 1.2 million farmers (41 percent women). Approximately 200,000 Zambian farmers (49 percent women) were reached through Munda Makeover, building on work to scale it out through the Diversification in East and Southern Africa Initiative and AICCRA. In Guatemala, a combination of radio, bulletins, and WhatsApp reached an estimated 557,325 farmers who received agroclimatic information through radio and 35,000 farmers (50.5 percent women) who received climate information via LTACs. In Senegal SMS was used to reach 29,205 farmers (70 percent women) while radio reached 902,025 farmers (51 percent women). In the Philippines, 4,120 farmers (40 percent women) piloting RCMAS Climate+ were reached using SMS. ClimBeR collaborated with partners to scale RCC in Kenya and Zambia, while in the Philippines, a partnership with the Philippines Crop Insurance Corporation and the Philippine Rice Institute were established to scale area-based yield index insurance.



EOIO 2

Policymakers use ClimBeR science and innovations to inform and/or shape at least nine policies including at least two aimed at reducing agriculture-related climate security risks.

ClimBeR shaped 19 policies and contributed to 45 policy change outcomes from 2022 to 2024. ClimBeR science on climate security risks informed the Intergovernmental Authority on Development (IGAD) Climate Adaptation Strategy (2023–2030) and Kenya’s third NCCAP 2023–2027, the African Union’s Climate Security Assessment, and Zambia’s Green Growth Strategy. Climate risk maps cogenerated with local partners were being used to inform local adaptation plans in the provinces of Guinayangan, Quezon, and Camarines Sur in the Philippines. ClimBeR also supported the development of Guatemala’s National Framework on Climate Services and the implementation of Zambia’s Farmer Input Support Programme. ClimBeR’s [Climate Smart Agriculture Investment Plan](#) was utilized to evaluate Senegal’s Nationally Determined Contribution (NDC) for 2020–2024 and to provide insights for the 2025–2029 NDC. ClimBeR research also informed the development of the UN Convention to Combat Desertification Atlas. In Sri Lanka, the Climate-Smart Governance Dashboard was adopted by the National Planning Department and Climate Change Secretariat, Ministry of Environment. ClimBeR also contributed to the development of Sri Lanka’s Sustainable National Anticipatory Action Plan. In Morocco, the MPG framework was used to develop action plans to enhance climate resilience in milk and olive value chains while ClimBeR’s research also informed the Morocco Soil Charter Policy.



EOIO 3

Initiative partners are enabled or supported to invest US\$30 million focusing on building climate resilience of women, youth, and vulnerable smallholder farmers.

Between 2022 and 2024, ClimBeR's technical assistance supported partners to access US\$754 million in climate finance, surpassing the US\$30 million target. This included US\$523 million from the GCF for Kenya, Senegal, and the Philippines, with an additional US\$231 million funding mobilization supported for non-ClimBeR countries in Uganda and Madagascar. This was a result of ClimBeR's climate science being used to develop proposed climate rationales, as well as integration of transformative adaptation and social inclusion into project design.

Social equity

ClimBeR's Social Equity approach questioned how people understand and experience social equity and its relationship to their capacity to adapt. This also examined how norms about gender, generation, and socioeconomic status shape people's understandings and experiences of social equity and adaptation. The research conducted by this cross-cutting area contributed to closing this gap through the design of a participatory qualitative and comparative methodology intended to nurture locally led "transformative adaptation pathways" that strengthen social equity and sustainability and can be adapted by CGIAR science programs and other actors working to catalyze locally led, inclusive climate action. ClimBeR's collaboration with the Livestock and Climate Initiative between November 2022 and April 2024 led to the design and testing of methodological social equity tools to understand how equity impacts the adaptive capacity of smallholder and livestock communities in Kenya and the Philippines, as well as the development of a social equity framework. The [participatory qualitative methodology](#) developed by ClimBeR nurtured locally led transformative adaptation pathways that strengthen social equity and sustainability. The methodology draws upon theories of social equity and justice rooted in participatory parity—values and norms that encourage people to interact with each other as equals and synergistically nurture recognition, distributional, representational, and intergenerational equities.

Findings demonstrated how understandings of fairness provide a basis for learning, eliciting comparative and contextualized findings that can inform locally led adaptation. The Social Equity team also led the publication of an article highlighting the importance of social equity in relation to climate resilience. The framework was also used to support the Initiative's Work Packages (WPs) to embed social equity within their activities and build synergies across them.

The team's standalone research focused on multiple scales. Community-level [Voices of Change](#) from Baringo, Kenya showcased audiovisual Indigenous stories of climate adaptation and culminated in a ClimBeR-led side event and the development and dissemination of a [policy note](#) at the 28th Conference of Parties (COP28) in Dubai. These stories were also used for advocacy and to support judges from the Kenyan Environment and Land Court in recognizing the importance of protecting the land rights of Indigenous peoples.

In the face of social processes that typically fuel inequities, ClimBeR's Social Equity research demonstrates that participatory tools and learning tactics can work to empower low-income women and men to identify, contribute to, and monitor actions that nurture their entire community's progress toward strong and equitable climate adaptation capacity.

Climate finance

In the last three years, ClimBeR's Climate Finance cross-cutting area contributed to advancing financial systems and institutional capacities to support climate-resilient investments from the local to national and global levels.

ClimBeR [developed and tested a range of innovative microfinance mechanisms](#) that combine credit, insurance, and savings. In 2022, ClimBeR collaborated with Financial Access, Agora Microfinance (Zambia), and ECLOF (Kenya) to develop climate-smart credit scoring tools designed for small and medium enterprises and microfinance institutions to give smallholder farmers access to finance. In Kenya, ClimBeR's RCC product combined microcredit and index insurance into a product deployed by commercial banks. The Initiative also worked to support capacity building of financial literacy on insurance, credit, and savings through the Shamba Shape Up TV show in Kenya and Munda Makeover in Zambia.

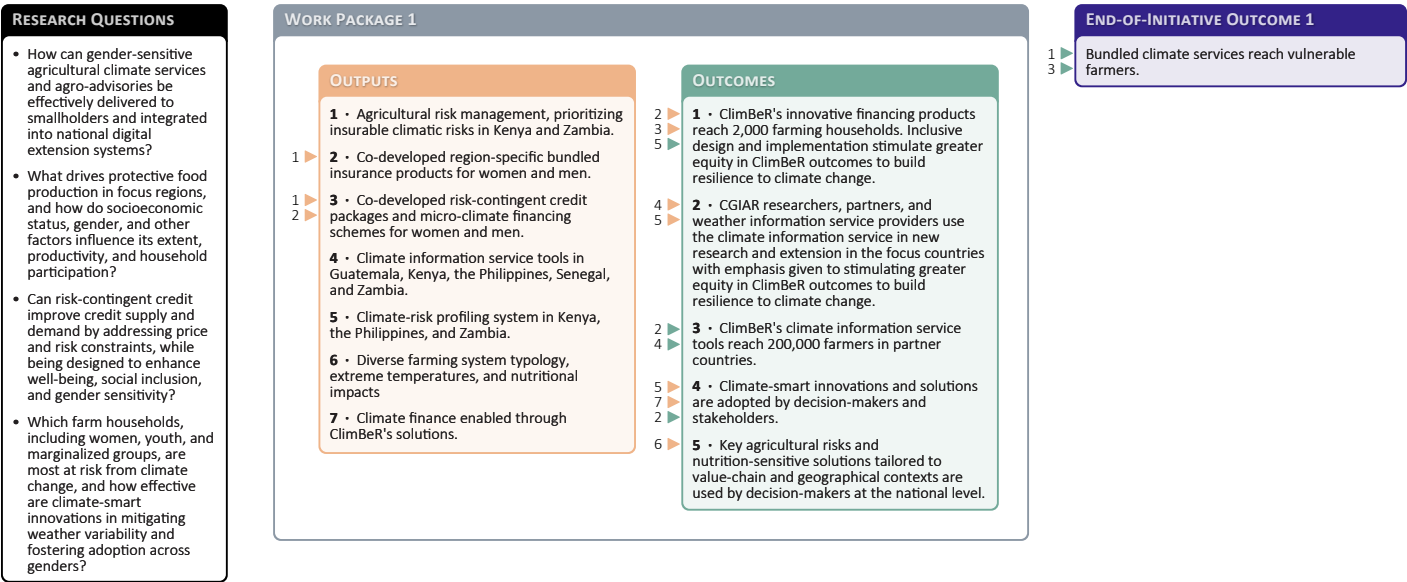
ClimBeR supported national partners to access climate finance using Climate Smart Agriculture Investment Plans and CGIAR research products to develop science-based project proposals. A methodology for climate security investment plans was cocreated with partners as a contribution to the Initiative's work on climate, peace, and security, resulting in linkages on how climate-smart agriculture investments can also lead to social cohesion. In 2023, a situational analysis to [support climate finance investments in the Karamoja cluster](#) identified gaps in national and local strategies for climate adaptation, strengthening alignment with financial commitments under frameworks such as the GCF and the Global Environment Facility. Findings informed evidence-based recommendations used to support Kenya and Uganda in the development of a GCF concept note and proposal that supported their governments in accessing US\$84 million in climate finance through the Participatory GCF Intervention Design.

In 2024, to support the global negotiations on climate finance at the UNFCCC, ClimBeR launched [a report](#) that provided evidence for negotiators on the [New Collective Quantified Goal on climate finance and financial flows in the Sahel and the horn of Africa](#). This resulted in interest from countries on capacity building support from ClimBeR to track financial flows for climate finance. ClimBeR also made three submissions to the UNFCCC process, advocating for transparency, an increased focus on adaptation finance, and the importance of defining climate finance.

This cross-cutting area leaves a legacy of strengthened partnerships, impactful research, and innovative financial solutions, setting a strong foundation for continued progress in climate-resilient investments and locally led climate action.

Section 3: Work Package progress

WP1: De-Risk—Reducing risk for producers’ livelihoods and in value chains



Work Package 1 progress against the theory of change

ClimBeR’s WP1 worked at local and national levels to deliver bundled climate information services, develop innovative microfinance mechanisms such as its RCC product, and streamline access to country-specific climate risk profiles with the overall goal of de-risking smallholders.

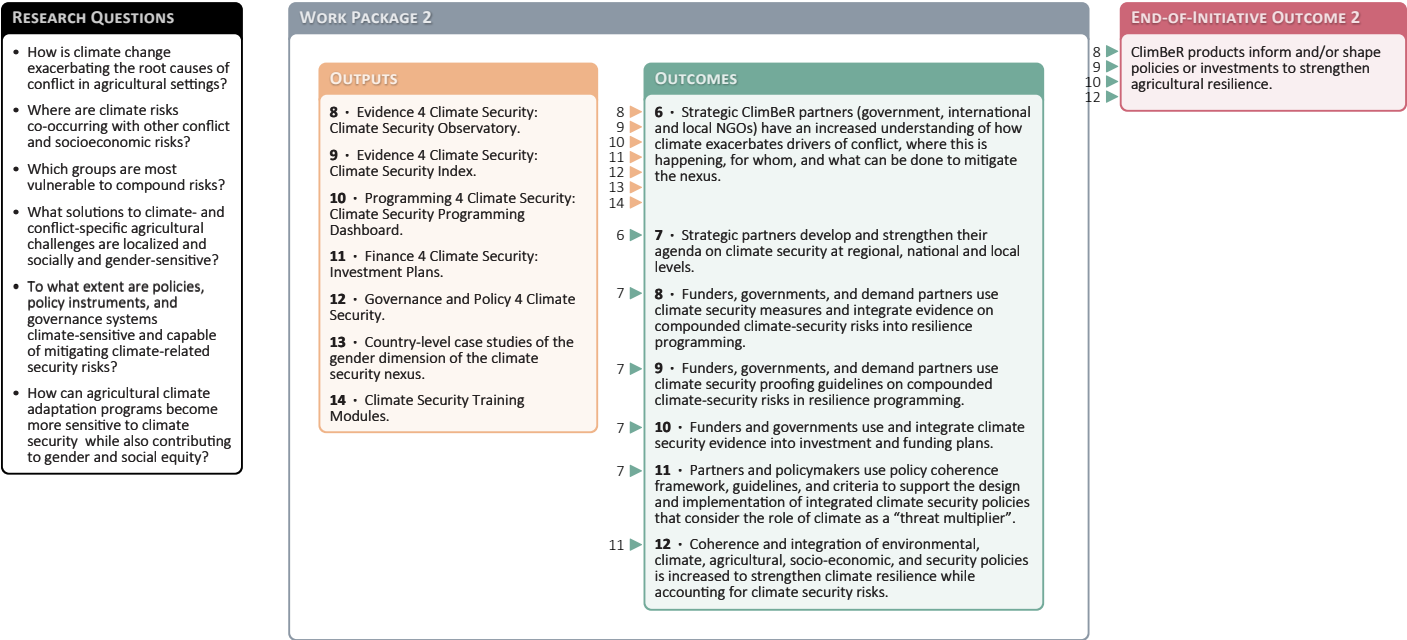
From 2022 to 2024, ClimBeR’s [bundled climate services](#) reached more than 2.8 million smallholder farmers, 49 percent of whom were women, testing different delivery approaches codesigned with partners in five of its focus countries in collaboration with other CGIAR Research Initiatives and Programs. Together with the Livestock and Climate Initiative, the Diversification in East and Southern Africa Initiative, and AICCRA, ClimBeR reached 1.2 million Kenyan farmers (41 percent women) through the Shamba Shape Up TV show, and 196,425 farmers (49 percent women) in Zambia through Munda Makeover. In Guatemala, an estimated 522,325 farmers (47 percent women) received agroclimatic information through radio while climate information and agro-advisories were disseminated via LTACs to 35,000 farmers (50.5 percent women) in collaboration with the AgriLAC Resiliente and Livestock and Climate Initiatives and bilateral collaborations. SMS was used to reach 4,120 farmers (45.2 percent women) in the Philippines and deliver gender-specific climate and nutrition information services to more than 920,000 farmers (60 percent women) in Senegal in collaboration with AVENIR.

ClimBeR successfully tested the commercial viability of RCC using the [Reach-Benefit-Empower-Transform framework](#) and gender-specific training materials. Approximately 5,692 farmers (36 percent women) were trained to use RCC in Kenya and Ethiopia. A preliminary analysis of evaluation surveys conducted in both countries shows that RCC was effective in increasing farmer investment on chemical fertilizer and seeds, signaling that the uptake of mechanisms such as RCC that help smallholder farmers access financing will help build smallholder resilience. Ongoing studies also reveal that empowered women are more likely to make decisions about farm investment and adopt RCC.

Climate risk profiles for heat stress, drought stress, and waterlogging/flooding stress were developed for Kenya, Zambia, and Senegal, with a dedicated data portal established to offer streamlined access to these detailed country-specific climate risk profiles and hazard maps. These profiles contributed to ongoing studies on heat stress and child nutrition as part of WP1 and were utilized in experiments with RCC.

The diverse interventions implemented by WP1 demonstrate a critical yet unconventional pathway to smallholder resilience. ClimBeR’s strong partnerships with varying levels of government are key to its long-term viability and sustainability.

WP2: Climate security



Work Package 2 progress against the theory of change

From 2022 to 2024, the state-of-the-art evidence generated by ClimBeR’s WP2 on the root causes of conflict and fragility increased knowledge and capacity, strengthened the climate security agenda of strategic partners, and informed policies and investments.

WP2 increased the capacity of key partners to understand the importance of the climate-conflict nexus in building sustainable resilience. Collaborations with the [Cairo International Center for Conflict Resolution, Peacekeeping and Peacebuilding](#) (global), [African Group of Negotiators and Expert Support \(AGNES\) Leadership Academy](#) (Kenya, Africa), [Mindanao State University](#), United Nations Development Programme (UNDP) (Philippines, Burkina Faso, Mali, Niger), [United Nations Economic Commission for Africa](#) (Ethiopia), [Kenya Climate Smart Agriculture Multi-Stakeholder Platform](#) (Kenya), [ACCORD](#), and [Ministry of Green Economy and Environment](#) (Zambia) were key to raising awareness both at the country level and globally on the climate security nexus through tailored capacity-building exercises. Codesign consultations with key stakeholders resulted in version 2.0 of Climate Security’s flagship innovation—the [Climate Security Observatory](#)—and advances in the development of the Climate Security Index (through a [pilot](#), [data collection](#), and [codesign workshop](#)) to help partners increase the peace potential of climate policy and programs and reduce the risk of investments in conflict-affected and fragile states.

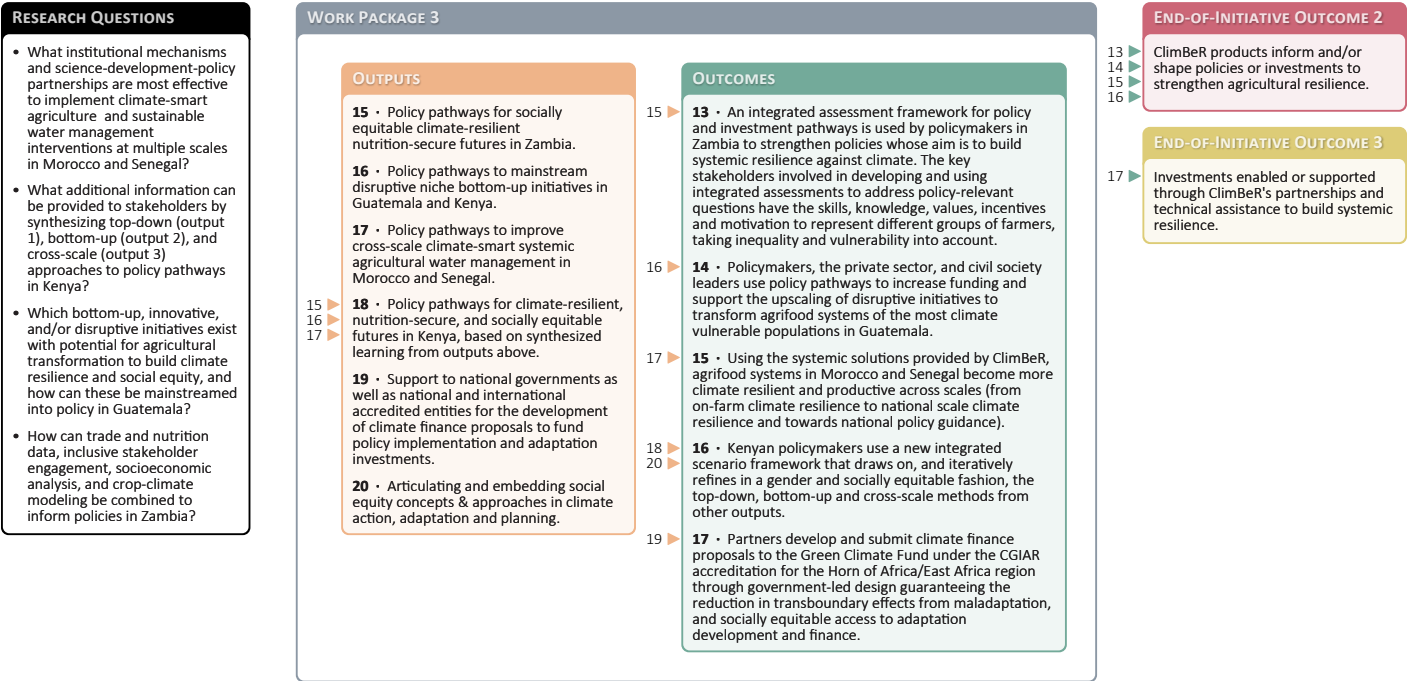
There is significant evidence that ClimBeR’s key demand, innovation, and scaling partners strengthened their climate security agenda, including the [United Nations Security Council](#), (1, 2) [AGNES](#) (1, 2); [UNDP](#); IGAD’s Centre of Excellence for Climate Adaptation and Environmental Protection (CAEP) (1,2,3); [ICPAC](#) ; [Pan-African](#)

[Media Alliance for Climate Change](#); [ACCORD](#) (1, 2); UN Food and Agriculture Organization-Somalia (1,2,3,4); [Kenya Climate Smart Agriculture Multi-Stakeholder Platform](#) (1); and the Adaptation Consortium (1). In Senegal, the [National Committee on Climate Change](#) held consultations for the inclusion of climate security in the [Climate Change Division](#) based on the [strengths, weaknesses, opportunities, and threats analysis](#) by the [Ecological Monitoring Center](#).

WP2 also exceeded EOIO 2 , informing a total of four national and regional policies. These include the [African Union’s Africa Climate Security Assessment](#), [IGAD-CAEP Regional Adaptation Strategy](#), [Kenya’s National Climate Change Adaptation Plan](#), and Zambia’s [Green Growth Strategy](#). In 2024, ClimBeR contributed to the enactment of two of these policies (NCCAP III and GGS) through the codesign and implementation of action plans and investments on climate security (see 1, 2, 3). WP2 also supported the submission of project proposals on conflict-sensitive/peace-responsible Climate-Smart Agriculture for Burkina Faso, Nigeria, and Ethiopia (GCF and African Development Bank). It also supported fundraising from the North American Aerospace Defense Command that aimed to increase the World Food Programme’s and CGIAR’s collaboration on the humanitarian, development, and peace nexus globally.

ClimBeR significantly advanced the research and policy agenda on the climate security nexus. It leaves behind a legacy in which research, tailored design, and strong partnerships prompted policy actors to integrate climate security into national policies and programs to build more resilient and peaceful societies, despite the escalating climate crisis.

WP3: Policy pathways



Work Package 3 progress against the theory of change

WP3 made significant progress in 2024, achieving outcomes at a range of scales from local to national levels by targeting a range of information needs through codesign with partners, planned research, policy pathways, and leveraging of strategic opportunities.

In Zambia, ClimBeR evidence was used in Zambia’s [Comprehensive Agriculture Transformation Support Programme](#). For this effort, WP3 provided supporting evidence on crop productivity, greenhouse gas emissions, and nutritional outcomes in support of diversification pathways. ClimBeR also provided input on the resilience of the value of beans to the Farmer Input Support Program.

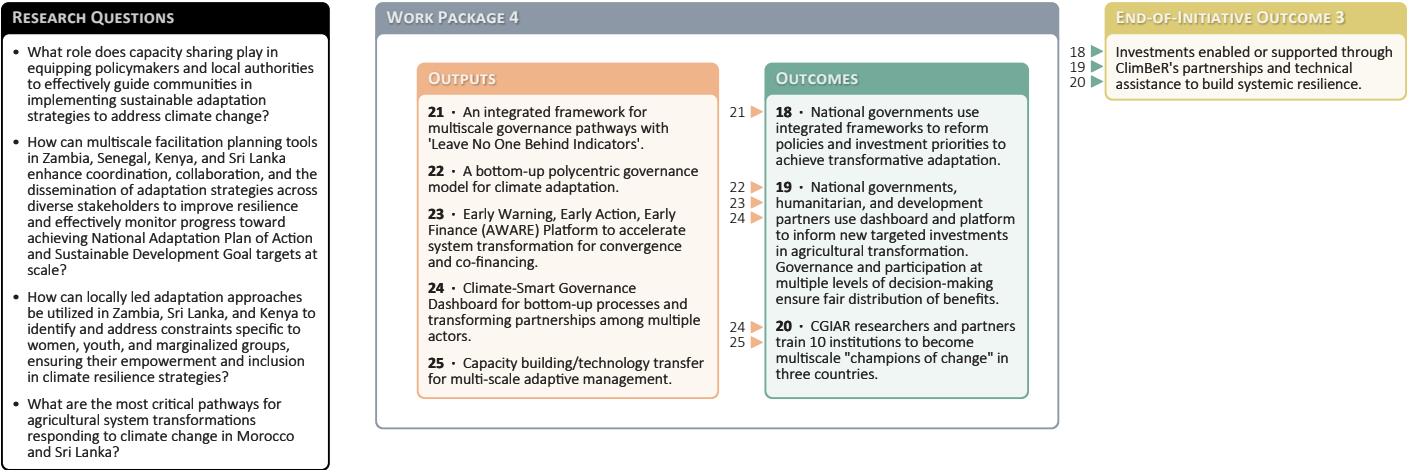
In Guatemala, together with the Livestock and Climate Initiative, ClimBeR advanced efforts to establish a [National Framework for Climate Services](#) to enhance climate information delivery for actionable outcomes. ClimBeR’s [Disruptive Seeds](#) approach, in which the so-called seeds are bottom-up initiatives with the potential to grow and provide alternative ways to spur food systems transformation, advanced the [Bejuco network](#), a coalition of small-scale initiatives, and its collaboration with the Ministry of Environment, thus enabling the development of strategies addressing land, water, and food access.

The [Disruptive Seeds approach from Guatemala also brought together diverse groups in Kenya](#). A food systems analysis helped identify impactful seed initiatives. Results were presented to policymakers, comparing nutritional outcomes with current policies. Work in Busia County, Kenya, led to evidence sharing on climate impacts and the costs of meeting appropriate nutritional diets to county government and Directorates for Crops, Livestock, Fisheries and Blue Economy, Agribusiness, and Veterinary Services. WP3 also enabled the successful [iSPARK](#) initiative that became active in Kenya.

In Morocco, a new subnational [multicriteria multistakeholder policy assessment framework](#) in the Saiss Plain was being used to cocreate future scenarios around conservation agriculture and agroecology with early-stage letters from key stakeholders (DRA and ONCA) to demonstrate the value added by ClimBeR’s science.

In Senegal, WP3’s [cross-scale evidence on crop diversification and water use efficiency were shared in science-policy dialogues](#) hosted by the Climate-Smart Agriculture Platform and the Ministry of Agriculture, Food Sovereignty and Livestock to foster collaborative climate resilience research on key crop value chains and accelerate agricultural adaptation strategies.

WP4: Governance 4 resilience



Work Package 4 progress against the theory of change

Codesigned and implemented together with partners, WP4 made significant progress in 2024, highlighting the importance of governance for resilience across scales. It advanced solutions that strengthened coordination and policy alignment, fostering integrated responses to climate risks and laying the foundation for sustained impact and future scaling.

ClimBeR’s work with the Ministry of Agriculture in Zambia led to the establishment of the National Drought Action Plan, with drought contingency plans implemented in two pilot districts using the South Asia Drought Monitoring System framework in partnership with the CGIAR Research Initiative on NEXUS Gains and the Indian Council of Agricultural Research, with a formal launch planned for 2025.

The launch of ClimBeR’s [Zambia Drought Management System](#) and the [AWARE](#) Platforms in collaboration with partners enabled provincial and district authorities in Zambia to undertake anticipatory action planning and improve [community disaster preparedness](#).

The [Climate Smart Governance Dashboard](#) also supported Zambian stakeholders in understanding and coordinating ongoing programs across sectors. This tool guides resource planning and climate adaptation prioritization and promotes long-term resilience measures aligned with [Zambia’s National Adaptation Plan](#). In Senegal, the Ministry of the Environment and Ecological Transition, through the Directorate of Climate Change, Ecological Transition,

and Green Finance, successfully launched the dashboard. By 2025, stakeholders aim to integrate adaptation monitoring, enabling real-time adaptation planning and climate finance tracking.

An operational flood forecasting system for the Zambezi Basin was handed over to WARMA to strengthen flood preparedness, while a pilot [index-based flood insurance](#) scheme was implemented with the Diversification in East and Southern Africa Initiative, ACRE Africa, and Professional Insurance Company Ltd.

In Sri Lanka, simulations conducted among drought-affected farmers showcased the transformative potential of aligning science, governance, and community-driven solutions. [Canal restoration projects](#) handed over to local authorities underscored the effectiveness of community-driven, locally owned solutions.

In Morocco, the Directorate of Strategy and Statistics adopted ClimBeR’s [MPG tool guide](#), enabling the [integration of young entrepreneurs into olive and milk value chains](#) under Morocco’s Green Growth Plan. This initiative aims to enhance economic water productivity as part of investments under Morocco’s Green Growth Plan.

ClimBeR’s Governance for Resilience approach underscored the necessity of transformative innovations across scales, emphasizing the role of effective governance through collaboration and coordination.

Work Package progress rating summary

WORK PACKAGE	PROGRESS RATING & RATIONALE
1	<div><div>On track</div><p>Our progress exceeded the theory of change (TOC) objectives: 2.8 million smallholder farmers WERE reached compared to the initial target of 300,000 (including 13+ percent more women than the target figure). These outcomes were jointly achieved with the Diversification in East and Southern Africa, Livestock and Climate, and AgriLAC Resiliente Initiatives, AICCRA, AVENIR, and PRORESILIENCE. In particular, the synergy between CGIAR Initiatives and bilateral projects through Shamba Shape Up and Munda Makeover significantly contributed to this overachievement. However, our definition of “reach” only reflects delivery and does not capture behavior change and whether this translated into use. Monitoring and evaluation studies assessed the impact of Climate Information Services in Guatemala, with further studies planned for other countries in Latin America, through the Alliance of Bioversity and CIAT.</p></div>
2	<div><div>On track</div><p>We achieved and exceeded our contribution to EOIOs. We increased the capacity of 2,400 men and women, strengthened the agenda of seven key demand and scaling partners, and informed four national and regional policies. For two of these policies, we also informed the implementation of their action plans.</p></div>
3	<div><div>On track</div><p>WP3 was on track with planned outputs and moving toward policy outcomes.</p></div>
4	<div><div>On track</div><p>The WP successfully achieved its TOC objectives across Morocco, Zambia, Sri Lanka, and Senegal. In Morocco, it supported action plans for transformative adaptation in agriculture value chains. In Zambia, decision-support platforms such as the Zambia Drought Management System and AWARE informed the national drought action plan. In Sri Lanka, key outcomes included the Climate Smart Governance Dashboard, mainstreaming anticipatory action plans, and the CultivateX integrated into GeoGoviya, a national digital agriculture platform reaching 1.8 million farmers. These outcomes, achieved with AICCRA, Digital Innovation for Water Secure Africa Initiative, the Diversification in East and Southern Africa Initiative, and Japan’s Ministry of Agriculture, Forestry and Fisheries of Japan will continue to scale through the CGIAR Climate Action Science Program to strengthen resilience in other regions.</p></div>

Definitions

On track

- Progress largely aligns with Plan of Results and Budget and Work Package theory of change.
- Can include small deviations/issues/delays/risks that do not jeopardize success of Work Package.

Delayed

- Progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas.
- Deviations/issues/delays/risks could jeopardize success of Work Package if not managed appropriately.

Off track

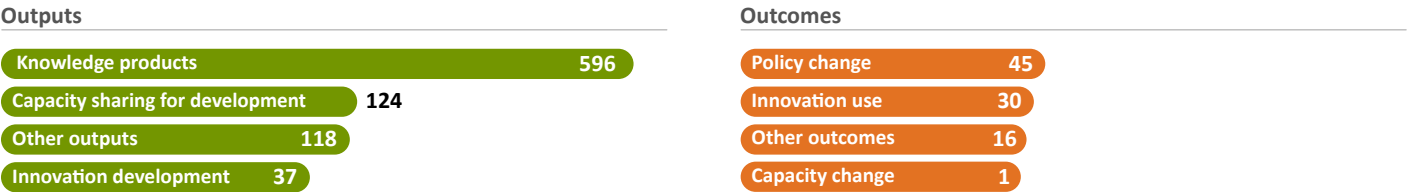
- Progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas.
- Deviations/issues/delays/risks do jeopardize success of Work Package.

Section 4: Quantitative overview of key results

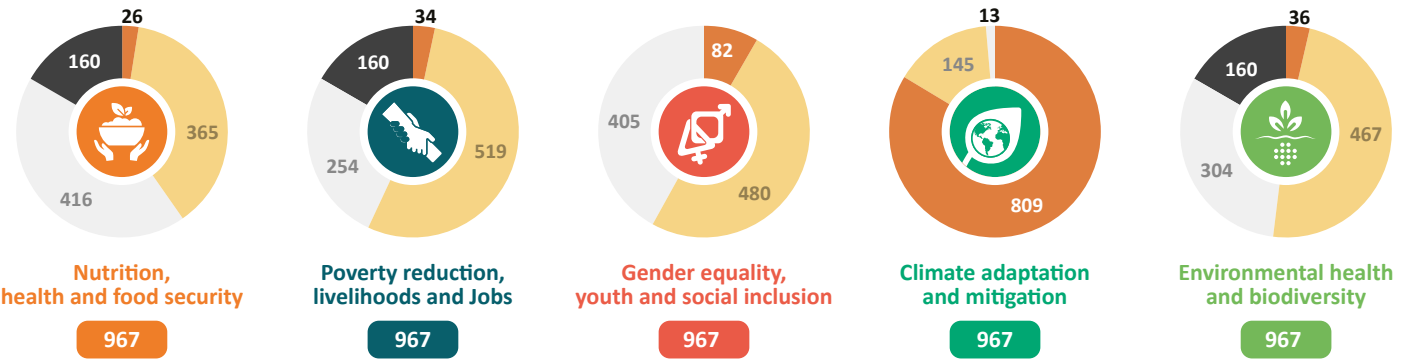
This section presents an overview of results reported and contributed to by the CGIAR Research Initiative on Climate Resilience from 2022 to 2024. These results align with the [CGIAR Results Framework](#) and the Initiative’s theory of change. Further information on these results is available through the [CGIAR Results Dashboard](#).

The data used to create the graphics in this section were sourced from the CGIAR Results Dashboard on 7 April, 2025. These results are accurate as of this date and may differ from information in previous Technical Reports. Such differences may be due to data updates throughout the reporting year, revisions to previously reported results, or updates to the theory of change.

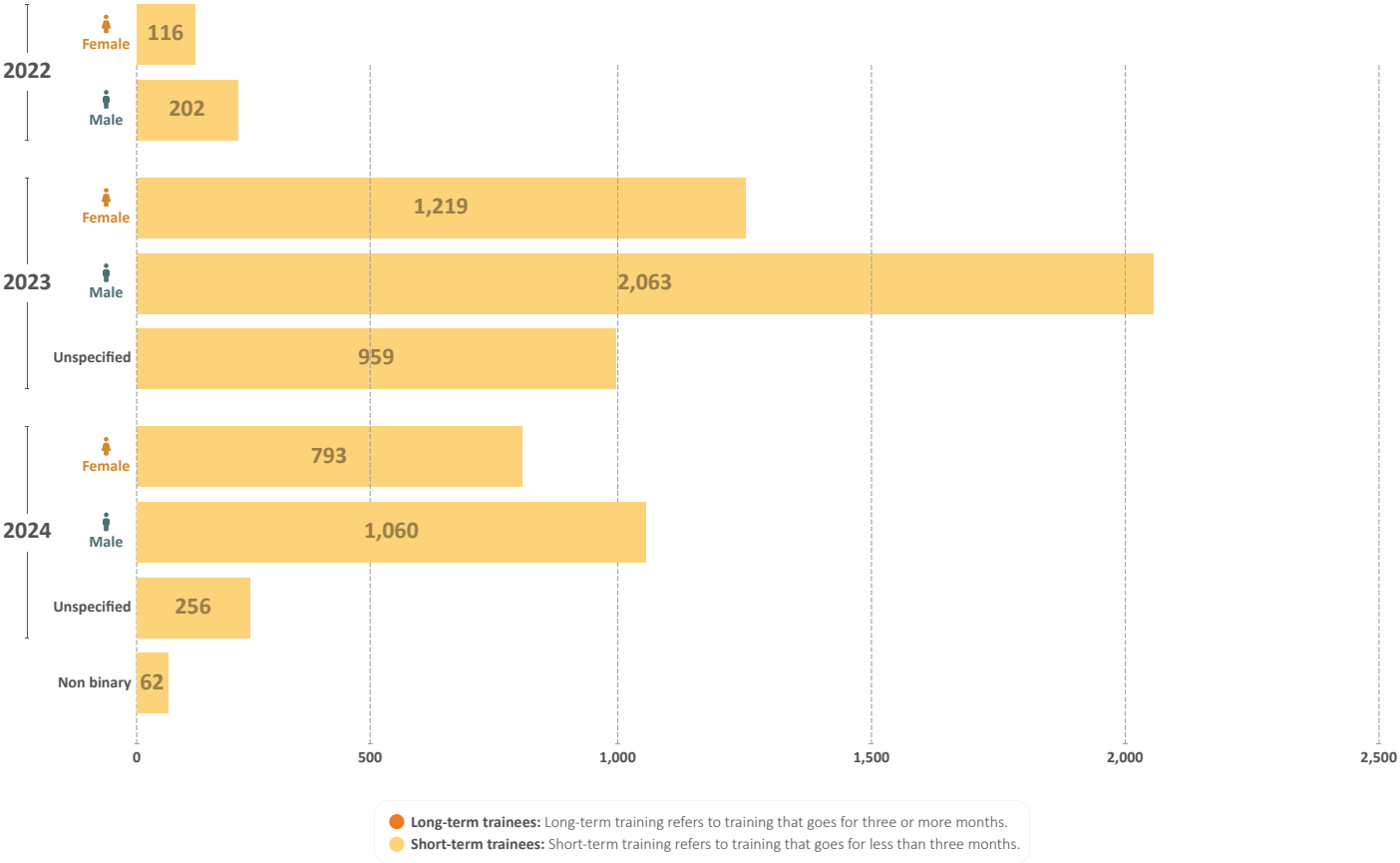
OVERVIEW OF RESULTS BY CATEGORY



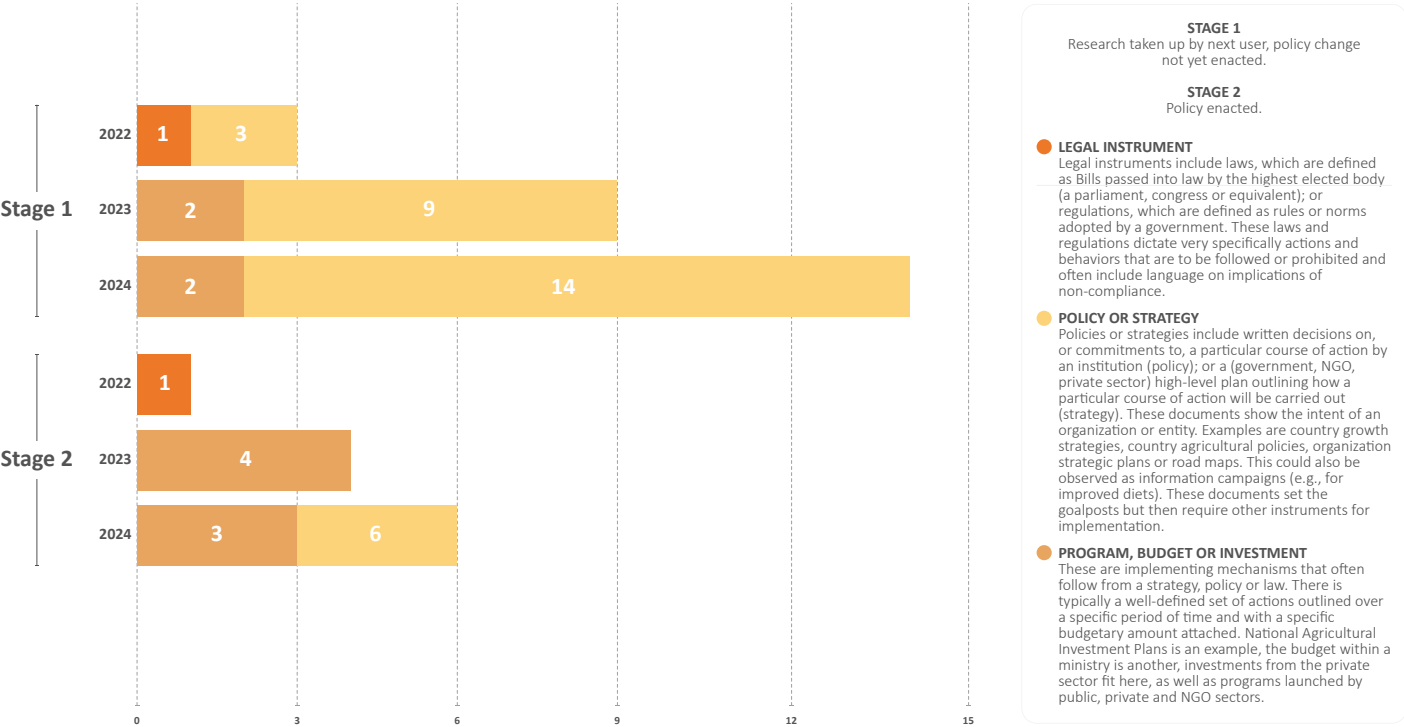
NUMBER OF RESULTS BY IMPACT AREA CONTRIBUTION



NUMBER OF INDIVIDUALS TRAINED BY THE INITIATIVE



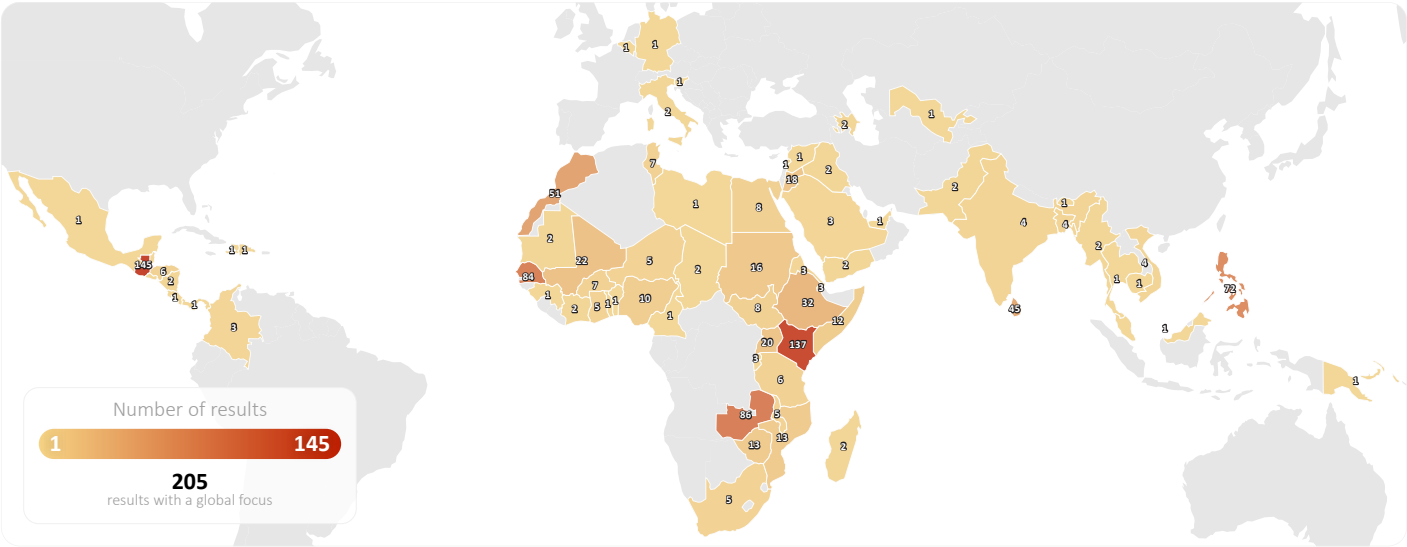
NUMBER OF POLICIES BY STAGE AND BY TYPE



NUMBER OF INNOVATIONS AND THEIR READINESS LEVELS

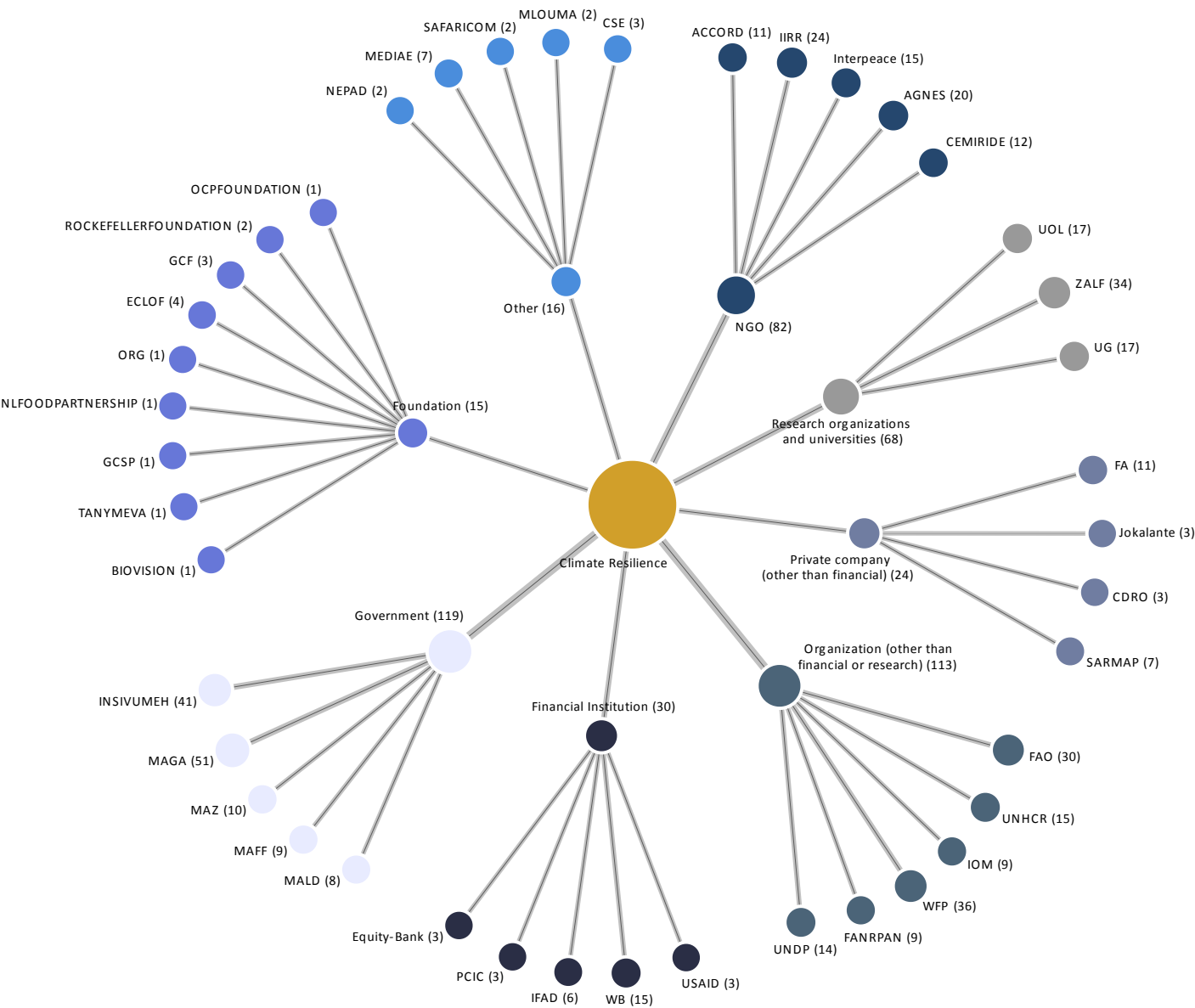


GEOGRAPHIC FOCUS OF RESULTS



One result can impact multiple countries and can therefore be represented multiple times.

CLIMATE RESILIENCE’S NETWORK OF KEY EXTERNAL PARTNERS



The diagram maps the key external partners of the ClimBeR Initiative, organized by partner type. The numbers in brackets represent the number of results each partner contributed to, reflecting the scale and diversity of collaborations. To allow for a clearer view, a maximum threshold of five partners was applied for each typology. The list of partner acronyms is available [here](#).

Partnerships and the Climate Resilience Initiative’s impact pathways

Building on a series of national engagements from 2022 to 2024 in ClimBeR’s six focus countries (Guatemala, Kenya, Morocco, the Philippines, Senegal, and Zambia), the Initiative facilitated the integration of capacities across CGIAR Centers on climate resilience, catalyzing a system-wide partnership through its work with five Centers (ICARDA, IFPRI, IWMI, IRRI, and the Alliance of Bioversity International and CIAT) and partners to ensure that work plan activities remain tailored to partners’ needs and opportunities for impact in each country. As a result of these efforts, ClimBeR had a diverse portfolio of partners, including ministries, national and regional agencies, financial institutions, private sector organizations, farmer organizations, NGOs, and research centers. In the last three years, ClimBeR reported 973 results involving more than 300 partners across its focal countries and regions. These partnerships included:

- Guatemala: A partnership with the Guatemala Ministry of Agriculture, Livestock, and Food and INSIVUMEH advanced the participatory extension of climate information services in the country. These collaborations directly reached farmers and contributed to policy development, including Guatemala’s National Framework for Climate Services.
- Kenya: A partnership with the Kenya Ministry of Agriculture and Livestock Development, the Climate-Smart Agriculture Multi-Stakeholder Platform, and JKUAT facilitated the co-development of a [training manual on inclusive approaches to climate change, agriculture, and peace](#), which will be used to train trainers within JKUAT. Collaboration with Equity Bank and Financial Access in Kenya enabled the piloting and enhancement of climate resilience financial tools such as [RCC](#) and [iSHAMBA](#), which help [smallholder](#)

[farmers access financing to strengthen climate resilience](#). Further collaboration with AGNES, International Union for Conservation of Nature, and the Ministry of Agriculture supported participatory processes and climate analyses to assist African countries such as Kenya and Uganda in accessing the GCF.

- Social equity and Indigenous rights in Kenya: A partnership with CEMIRIDE [enhanced social equity and the engagement of Indigenous peoples in climate policies and action](#) through advocacy tools such as the [Voices of Change video series](#). Further collaboration with CEMIRIDE and the Disruptive Seeds Coalition expects to shape the 2024 Livestock Bill, which aims to secure the rights of pastoralists in Kenya to indigenous livestock breeds.
- Morocco: A partnership with the National Institute for Agricultural Research and the Moroccan Association of Soil Science facilitated the development of the National Charter for Sustainable Soil Management, which provides strategic guidelines for soil protection, restoration, and sustainable management in Morocco.
- Senegal: Partnerships with the African Center of Meteorological Applications for Development (ACMAD), ANACIM, Jokalante, and MLouma facilitated the codesign and advancement of climate

information services in Senegal. A recent collaboration with the University of Chicago explored pathways to support both ANACIM and ACMAD countries in enhancing climate resilience through AI-driven forecasting.

- The Philippines: A [partnership](#) with the Philippine Crop Insurance Corporation and the Philippine Rice Research Institute enabled the [development of the area-based yield index insurance implementing guidelines](#), facilitating the scaling of area-based yield index insurance for rice. This initiative has the potential to benefit more than 2 million farmers. Collaboration with the Department of Agriculture also supported the extension of climate resilience agro-advisories in the country. Additionally, a partnership with Eco Limited and the Land Bank of the Philippines contributed to the development of the GCF-PILAR proposal.
- Zambia: The partnership with the Zambia Ministry of Agriculture led to the development and operationalization of the [Zambia Drought Management System](#), enhancing the country's drought response capacities. In addition, collaboration with the Ministry of Green Economy informed the [Zambia National Green Growth Strategy \(2024–2030\)](#) by providing evidence to support social cohesion, peace, and stability in the pursuit of sustainable economic growth.



The solar-powered borehole intervention in the Hanzilla community showcases the crucial role that water plays in resilient food system development and economic growth.

Credit: ClimBeR

CLIMATE RESILIENCE’S INTERNAL NETWORK OF COLLABORATIONS



The diagram presents the internal collaborations of ClimBeR with other CGIAR Initiatives, Impact Area Platforms. Connections are sized according to the number of shared reported results, highlighting the depth of collaboration across the CGIAR Portfolio. A results threshold filter is applied (set to a minimum of six results) to focus the view on the most significant collaborations. Thicker lines represent stronger collaborative links based on a higher number of shared results.



Eastern Luzon, The Philippines, January 2024. Women farmers discussing their understandings of and experiences with social equity and climate adaptation.
Credit: Sonica Salcedo

Portfolio linkages and the Climate Resilience Initiative’s impact pathways

ClimBeR worked closely with various Initiatives and bilateral projects across six focal countries—Guatemala, Kenya, Morocco, the Philippines, Senegal, and Zambia—in line with the CGIAR research portfolio’s integration strategy. These collaborations helped align activities with complementary research areas, foster synergies, and enhance coordination to maximize CGIAR’s impact while ensuring efficient resource use and minimizing duplication.

Significant areas of collaboration from 2022 to 2024 include:

- ClimBeR worked in partnership with the CGIAR Research Initiative on Fragility, Conflict, and Migration through CGIAR FOCUS Climate Security to advance research on the climate-security nexus. This collaboration resulted in the development of innovations such as the Climate Security Observatory, the [Climate Security Programming Dashboard](#), and the [Climate Security Sensitivity Tool](#). Joint research efforts also provided evidence supporting climate-peace-security policies at national and regional levels in collaboration with the AgriLAC Resiliente and Livestock and Climate Initiatives.
- ClimBeR extended climate resilience agro-advisories and nutrition advice, reaching more than 2.8 million farmers across Guatemala, Kenya, Senegal, the Philippines, and Zambia through collaborations with AICCRA and AVENIR, and the AgriLAC Resiliente, Diversification in East and Southern Africa, and Livestock and Climate Initiatives. In Sri Lanka, ClimBeR also collaborated with the Fruit and Vegetables for Sustainable Healthy Diets Initiative to provide climate and agronomic services to increase fruit and vegetable intake.
- ClimBeR collaborated with the Promoting Resilience and Food Security through Risk-Contingent Credit in Africa project, funded by Germany’s Federal Ministry of Economic Cooperation and Development, to expand access to RCC for farmers in Ethiopia, Kenya, and Zambia.
- In Morocco, ClimBeR partnered with the CGIAR Research Initiatives on Excellence in Agronomy and Fragility to Resilience in Central and West Asia and North Africa to provide evidence on conservation agriculture as an adaptation strategy. This contributed to shaping the Morocco Soil Charter Policy.
- In collaboration with AICCRA, ClimBeR supported the operationalization of the Zambia Drought Management System with the country’s Ministry of Agriculture. The collaboration with NEXUS Gains also contributed to scaling up the South Asia Drought Monitoring System.
- Together with Livestock and Climate, ClimBeR developed [Shamba Shield](#), an integrated platform that combines climate-smart agricultural practices, financial services, and risk assessments to support smallholder farmers in building climate resilience in Kenya.
- ClimBeR collaborated with the CGIAR GENDER Impact Platform to contribute socially equitable policy inputs at a global scale, including at the Symposium on Gender and Social Transformative Change in Agrifood Systems. In addition, working together with the Climate Impact Platform helped disseminate key publications and enhance engagement and outreach at events while engaging in global climate policy discussions, including UNFCCC processes such as COP27 in Sharm-El-Sheikh, COP28 in Dubai, and COP29 in Baku.



Section 7: Key result story

Building community resilience in Zambia

The standfirst should summarize the outcome or impact at the center of the story, and include action verbs that bring the story to life.



A solar-powered borehole in the Hanzila community of the Monze District in Southern Zambia aims to help local communities mitigate disaster risk and help change lives.

Credit: ClimBeR

Primary Impact Area



Other relevant Impact Areas targeted



Contributing Initiative

CGIAR Initiative on Climate Resilience

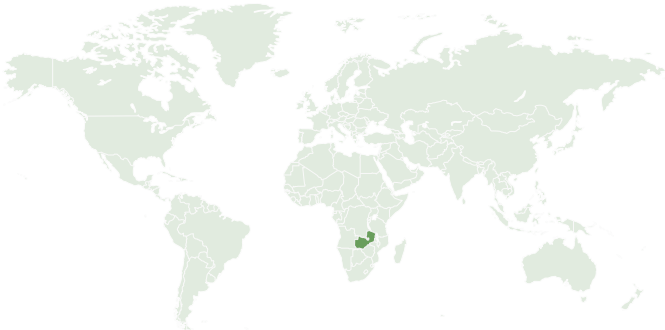
Contributing Centers

International Water Management Institute · Alliance of Bioversity and CIAT

Contributing external partners

Ministry of Agriculture, Zambia

Geographic scope



Regions: Southern Africa

Country: Zambia

In 2024, the El Niño-induced drought severely impacted more than 1 million farming families, threatening food and nutrition security and livelihoods in Zambia. With approximately 90 percent of cultivation being rainfed, smallholders are particularly vulnerable to drought. The CGIAR Initiative on Climate Resilience (ClimBeR) and partners utilized a multipronged approach that included a drought management tool, a polycentric governance framework, and a solar-powered borehole to help Hanzila's Tonga community locally manage and protect against the devastating impacts of drought.

Zambia is no stranger to drought, **having experienced it every four to five years** since the late 1980s. Small-scale farmers make up almost 80 percent of the population, and with almost 90 percent of cultivation in the country being rainfed, smallholders are particularly vulnerable to drought. In 2024, the El Niño-induced drought severely impacted more than 1 million farming families, threatening food and nutrition security and livelihoods.

Locally led climate action has emerged as a critical approach to addressing climate-related challenges at the grassroots level. Through its [Locally Led Climate adaptation ChampION \(ACTION\)](#) program, ClimBeR utilized a multipronged approach to help the Indigenous Tonga community in Zambia's Southern Province protect against the devastating impacts of climate disaster by improving food and nutrition security and livelihoods through access to sustainable water solutions.

In 2023, the Initiative launched the [Zambia Drought Management System \(ZADMS\)](#) in collaboration with Accelerating Impacts of CGIAR Climate Research for Africa and the Digital Innovation for Water Secure Africa Initiative. ZADMS provides critical information to help national agencies manage drought. Using ZADMS, the Ministry of Agriculture in Zambia was able to identify recurring areas of drought for contingency plans and began formalizing a national drought action plan for medium to long-term drought resilience. Local government, communities, and farmers were prioritized through a consultative process, and the Indigenous Tonga community in Hanzila, in the Monze district of southern Zambia, was identified as an intervention site for strengthening communities' capacities to adapt to climate change.

ClimBeR developed a polycentric governance framework that was analyzed and evaluated in conjunction with local communities. Community members identified the need for [sustainable water solutions](#) as a priority during initial conversations with ClimBeR researchers and partners. The framework was put into practice through a participatory process that involved multiple stakeholders, from local government to community organizations, who codesigned adaptation solutions and pathways in setting up a solar-powered borehole to provide year-round access to water for climate action.

The solar-powered borehole benefited the Tonga community households by providing access to clean water for multiple uses, including drinking water, water for irrigation, and water for livestock. The increased access to water enabled irrigation of high-value crops such as melon, tomatoes, cabbage, leafy vegetables, and eggplant, providing the community with both nutritional and economic benefits. The move away from monoculture also meant greater livelihood resilience, as producers were no longer reliant on a single crop, while also improving equity, as women in the community no longer had to travel long distances to collect water. The improved capacity to grow high-value crops and take them to market provided alternative livelihood opportunities for middle-aged and older women in the community and also increased their income. Water, therefore, is the clear entry point for climate-resilient development. Today, there are nine different field plots in Hanzila, and women have organized to establish a solar irrigation community that helps them earn an income and meet other community welfare needs.

ClimBeR worked to build smallholder resilience through science in action that transforms the adaptive capacity of food, land, and water systems. This locally led adaptation approach, together with the importance of vertical and horizontal polycentric governance, demonstrates the crucial role of water resilience in food systems development, economic growth, and community resilience. The results highlighted in this story are an example of how CGIAR conducts and implements research in collaboration, not just with local government but also with local communities. Initiatives such as this one lead to sustainable impact by empowering local communities to have greater agency in driving the decisions that affect their lives and livelihoods..

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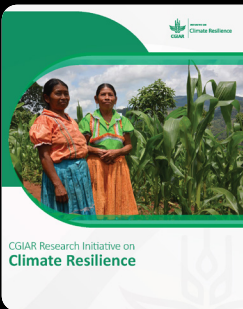
Our hope is that the ZADMS system, developed at the national level, will also be embraced by the provinces to monitor potential droughts in their regions. It's an open-access tool—readily available to anyone—so it can be used to support and safeguard our farming communities.

Chrispin Moyo, Principal Mapping, Ministry of Agriculture



2022 key result story

About US\$30 million to be unbolted by ClimBeR & AGNES' critical partnership for transboundary climate financing in Horn of Africa



2023 key result story

Kenya's new climate action plan tackles security threats



The journey to resilience for current and future generations, especially for communities at the frontlines of the climate crisis, requires community leadership and locally led interventions, supported by sound scientific evidence and research.

Credit: ClimBeR