CGIAR | Independent Advisory and Evaluation Service

CGIAR Science Group Evaluations: CLIMATE CHANGE

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Cover image: Collage from the Science Groups evaluations field trips. Credit: IAES.

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AICCRA	Accelerating Impacts of CGIAR Climate Research for Africa
CGIAR	Consultative Group on International Agricultural Research
CoP	Community of Practice
CRP	CGIAR Research Program
FCDO	Foreign, Commonwealth & Development Office
GI	Genetic Innovation
GTI	Global Thematic Initiative
IAES	Independent Advisory and Evaluation Service
IFA	Integration Framework Agreement
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Chage
MEL	Monitoring, Evaluation, and Learning
NDC	Nationally Determined Contributions
RAFS	Resilient Agrifood Systems
RII	Regional Integrated Initiative
QoS4D	Quality of Science for Development
SDG	Sustainable Development Goal
SG	Science Group
SGE	Science Group Evaluation
ST	System Transformation
ToC	theory of change
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
WP	Work Package

Executive Summary

(Adaptation from the Brief on Climate Change)

The CGIAR 2030 Research and Innovation Strategy identifies adaptation and mitigation as part of five Sustainable Development Goal (SDG)-focused Impact Areas. The Strategy suggests how CGIAR s research, innovation and capacity development can contribute toward achieving collective global targets for climate change adaptation and mitigation. CGIAR s action on climate change addresses the risks to food systems, the impact of food systems emissions, and the potential for integrated solutions.

The 2022-24 Portfolio, three Science Group[1]—Genetic Innovation (GI), Resilient Agrifood Systems (RAFS), and System Transformation (ST) comprised 33 Initiatives. Evaluative insights and lessons on climate change from the evaluations of GI, RAFS, and ST SGs are presented in this report. The Independent Advisory and Evaluation Service (IAES) conducted the three SG evaluations under the 2022–24 Multi-Year Evaluation Workplan (2021; re-confirmed 2024) and in alignment with the evaluations Terms of Reference (ToR).

The evaluations followed CGIAR s Evaluation Framework and Policy and integrated both formative and summative approaches to support learning, steering, and accountability, specifically to support CGIAR evidence-based efforts to adapt to the 2025–30 CGIAR Portfolio. The evaluations used mixed methods (qualitative and quantitative data collection) included: desk research; six field visits (Kenya, Ghana, Bangladesh, Colombia, Vietnam and USA)(Figures 1 and 2); 362 key informant interviews (virtual and in-person); focus group discussions; portfolio analysis; and an online survey. Evaluations aligned with the QoS Evaluation Guidelines, which included a review of sample scientific outputs. Of the 11 case studies, two focused on climate change: Strengthening Resilience to Climate Change, as part of the ST SG report; and Climate Change Mitigation/Adaptation across different SG Initiatives and work packages (WPs), under the RAFS SG evaluation. For real-time learning, a participatory approach to data collection helped identify critical issues and good practices. The Synthesis and three SG evaluations also used the 2021 Synthesis of Learning from a Decade of CGIAR Research Programs as a backdrop.

Three recommendations across the three SG evaluations directly relate to climate change:

- Build on CGIAR's comparative advantages in climate resilience research: **mainstream climate adaptation and mitigation across the entire portfolio** by continuing to provide evidence of the transformative impacts of national policies and strategies in building the resilience of FLW systems to climate change and reducing emissions, using integrated systems frameworks (ST SG, Rec. 7).
- **Develop incentives for interdisciplinary team collaborations** across Centers to tackle interconnected issues under the integrated management framework. Continue using platforms and CoPs to promote collaboration across all science programs and accelerators, supporting a more integrated approach to reducing food system vulnerabilities and limiting their impact on climate change (ST SG, Rec. 3).
- **Integrate genetic gains into broader contexts**: Combine crop improvement with agronomy and plant health research, promoting crop and varietal diversity for resilience and environmental health (GI SG, Rec. 5c). Expand research and dissemination of novel climate-resilient crop varieties and adaptive farming systems. Strengthen prediction models.

[1] Stem from the CGIAR 2030 Research and Innovation Strategy. Between 2022-23, the 2030 CGIAR Research Portfolio was comprised of 33 Initiatives across three Action Areas (i.e., SGs).

Key Findings Behind Recommendations

Insights on climate adaptation and mitigation are structured around evaluation criteria (relevance, QoS synthesis, effectiveness, coherence and efficiency) with corresponding recommendations and follow-up actions. CGIAR s high-quality scientific research on Climate Adaptation and Mitigation significantly contributed to global resilience, notwithstanding incomplete metrics and inconsistent stakeholder engagement. Notably, strengthening interdisciplinary collaboration, improving research integration, and enhancing impact assessment mechanisms, including standardized impact metrics, would be crucial to sustaining CGIAR s leadership role in climate science. By addressing key challenges, CGIAR can further position its thought leadership by informing science-based climate solutions for food system resilience.

Relevance

CGIAR's climate work aligns well with global priorities such as SDG 13 and the UN Framework Convention on Climate Change, and supports international and local climate resilience goals, including those in the IPCC's Sixth Assessment Report. However, it is less aligned with the Convention on Biological Diversity and does not fully address the interconnected challenges of climate change, biodiversity loss, water scarcity, food security, health, and inequality highlighted in the 2024 IPBES Nexus Assessment.

At national and regional levels, the relevance of CGIAR s work depended on how applicable and scalable its research findings, solutions, and innovations were to local contexts. Regional Integrated Initiatives (RIIs) were designed to function as key vehicles for scaling innovations, policy change, and capacity development in collaboration with regional and national partners. However, given that the RIIs were only launched in 2022, it is still too early to fully assess how effectively they are fulfilling their intended role[2].

*Quality of Science[3] (**QoS Synthesis**)*

While management processes generally supported the credibility, legitimacy, and relevance of research, SG evaluations found they were often constrained by limited time for consultation during the design phase. Weak collaboration between Initiatives reduced synergies, hindering integration of mitigation strategies into modeling and policy frameworks. Persistent quality challenges included insufficient field trials for adaptation technologies, limited incorporation of GHG metrics into foresight tools, and weak integration of socio-economic factors. Lacking unified intellectual property guidelines strained partnerships and collaboration at times.

A key challenge to high-quality climate research is the adequacy of inputs—funding, infrastructure, and expertise. CGIAR's climate Initiatives faced funding uncertainties affecting continuity and retention of expertise. Evaluations identified gaps in social science, policy analysis, behavioral science, and climate modeling, with few incentives for transdisciplinarity.

Climate resilience Initiatives under the ST SG demonstrated strong methodological rigor. When applied, interdisciplinary approaches reinforced scientific credibility. Peer-reviewed publications in high-impact journals, along with Altmetric scores and downloads, underscored CGIAR's global relevance. The Climate Impact Area Platform linked CGIAR scientists to global platforms, though engagement could grow.

Scientific quality was reinforced by structured management, especially in setting priorities, study design, and stakeholder engagement. Initiatives that co-designed studies with national partners established

[4] 2030 Research and Innovation Strategy.

[4] 2030 Research and Innovation Strategy.

multi-institutional forums, enhancing engagement. However, gaps remain in representing adaptation technologies across agro-ecological zones. GHG metrics are still underused in foresight modeling and digital tools, weakening applicability to mitigation strategies.

CGIAR has produced numerous high-quality outputs, including peer-reviewed publications, policy briefs, datasets, and decision-support tools. A 2024 review of 105 peer-reviewed products showed a growing focus on solutions: 53 addressed climate adaptation and mitigation, 40 focused on new methodologies, and 44 examined climate change impacts.

A key limitation in assessing scientific quality is the lack of standardized metrics to integrate impacts of peer-reviewed and alternative science outputs. Others included:

- Limited interdisciplinary collaboration, particularly between biophysical and social sciences, reduced the comprehensiveness of climate research.
- Weak integration of adaptation and mitigation strategies, hindered the development of holistic climate solutions.
- Broad but uneven stakeholder engagement, with time constraints often limited meaningful consultation, especially with youth and the most destitute stakeholders, during research design.
- Limited representation of adaptation technologies across diverse agro-ecological zones constrained the generalizability of the findings.
- Insufficient incorporation of GHG metrics into foresight modeling and digital tools, restricted comprehensive mitigation assessments.
- Weak integration of socio-economic considerations (gender and equity), into mitigation research.
- Lack of standardized intellectual property and authorship guidelines, sometimes leading to tensions in research partnerships.
- Short and uncertain funding cycles impacted research continuity and the retaining critical expertise.

Effectiveness

Climate change adaptation and mitigation were systematically considered, but without holistic integration of the two, in the design of Initiatives, particularly under the ST and RAFS science groups. Initiative proposals included dedicated impact statements explaining how their activities contribute to CGIAR s climate impact area. The understanding of the roles of the three SGs in relation to CGIAR's five impact areas was unclear.

The Climate Impact Area Platform was designed to facilitate systematic integration across initiatives, bringing together researchers and fostering linkages with external partners. Nearly 600 scientists from 12 CGIAR Centers joined the Community of Practice (CoP, established in 2023). The limited clarity on the Platform s engagement with SGs and Initiatives weakened its ability to drive integration. Scalability readiness challenges hindered the platform's potential for broader transformative impact. Its effectiveness was further limited by a delayed launch, a short implementation period, and operational difficulties.

The SG evaluations found evidence of meaningful delivery and scaling of climate objectives across all CGIAR regions. The 2023 progress built on earlier work from CGIAR Research Programs (CRPs), with the 2022 portfolio expected to generate longer-term impacts. Although climate Initiatives estimated their projected contributions to global climate targets, systematic reporting against these targets remained limited.

The tagging of climate-related outputs on the CGIAR Results Dashboard was a useful mechanism to organize and access relevant research. It was incompletely applied, and the lack of distinction between adaptation, mitigation, and maladaptation limited its analytical utility.

A theory of change (ToC) analysis in the GI SG Evaluation showed that critical causal assumptions about the contribution of Initiatives and significant research outputs to the achievement of early outcomes at crop breeding programs level (CGIAR & NARES) were not sufficiently explored or made explicit, despite ToC revision. The 2024 EA Synthesis also noted that crucial assumptions were not deeply explored, particularly those concerning human behavior, the adoption of research results, and socio-economic realities.

Coherence and Efficiency

Four in five (80%) survey respondents supported developing a dedicated climate change strategy to improve integration across Initiatives. While the new SG framework improved cross-Center collaboration, ST still struggles to integrate biophysical, social, and economic sciences for holistic climate resilience. This limits comprehensive responses to climate vulnerability across value chains.

The GI SG evaluation found limited focus on cropping systems risks misalignment with RAFS and ST groups, missing opportunities to enhance climate resilience, nutrition, water security, and environmental health. Unlike the former CRP structures, the SG framework improved cross-Center collaboration by pooling diverse expertise and funding. However, challenges persist, i.e. siloed operations, resource competition, and inconsistent coordination between Initiatives on similar topics. Discrepancies between planned and approved funding further constrained implementation, reducing geographic scope and ambition

Recommendations/Actions

Complementing **three recommendations** across the three SG evaluations (Recs. 3 and 7 for ST SG, and Rec. 5c for GI SG- see above) specific recommended actions from case studies include:

- **Strengthen the tagging and classification of climate-related outputs** to improve tracking, synthesis, and accessibility of research findings, to ensure systematic categorization for better utilization.
- **Build on CGIAR's comparative advantage in climate resilience research** by mainstreaming climate adaptation and mitigation across the entire research portfolio, integrating climate action into all thematic areas, and ensuring robust methodologies for measuring climate impact.
- **Enhance interdisciplinary collaboration and cross-sector linkages** by fostering stronger connections between climate science, socio-economic research, and policy engagement, enabling a more holistic approach to addressing food system vulnerabilities.
- **Improve integration of adaptation and mitigation** by systematically incorporating both, including trade-offs, into adaptation research frameworks to support comprehensive climate solutions.
- **Strengthen the use of GHG metrics and foresight modeling** within CGIAR's digital tools to improve the assessment of mitigation strategies and ensure their applicability in decision-making processes.
- **Expand stakeholder engagement mechanisms** by fostering deeper collaboration with national and regional partners, aligning research objectives with real-world climate resilience needs, and improving participatory approaches in the design and implementation of initiatives.
- **Secure stable, long-term funding commitments** for CGIAR's climate research to ensure continuity, support high-quality innovation, and maintain leadership in global climate resilience efforts.

Each SG evaluation issued a management response (MR): ST SG MR; RAFS SG MR; and GI SG MR and their implementation status is in the CGIAR s MR Tracker. Their Implementation would enhance the impact, efficiency, and coherence of CGIAR s climate research portfolio, thereby strengthening its contribution to global efforts in building climate-resilient and low-emission food system.

1 Introduction

Between 2022-24, the Portfolio of CGIAR's three Science Groups (SGs) was delivered through a set of 32 Initiatives. In line with the Terms of Reference (ToRs) for the SG Evaluations (SGEs), three independent evaluations were conducted (one per SG) in 2024 under the 2022–24 Multi-Year Workplan (2021; re-confirmed 2024). The evaluations were commissioned by the CGIAR System Council and executed by the IAES, with support of external evaluation teams. These evaluations aimed to promote learning and lessons, and support evidence-based efforts by CGIAR to adapt the 2025-30 Portfolio design under the 2030 Strategy.

Supporting the roll-out of the 2025–30 CGIAR Portfolio, this report draws on results of the three SG evaluations, with a focus on insights from related to climate adaptation and mitigation, relevant to CGIAR s five 2030 impact areas. Aligned to the ToRs, the sub-study analysis is structured around five evaluation criteria: 1) relevance; 2) coherence; 3) effectiveness; 4) efficiency; and 5) quality of science (QoS).

Several documents and data sources were reviewed for this sub-study, including:

- Three SG evaluation reports: Genetic Innovation (GI), Resilient Agri-food Systems (RAFS) and System Transformation (ST), their Synthesis, and consideration of progress towards recommendations of the 2021 Synthesis of Learning from a Decade of CGIAR Research Programs;
- Reports of two climate-related case studies undertaken during the two SGEs: Strengthening Resilience to Climate Change (ST) and Climate Change Mitigation/Adaptation across Different SG Initiatives and work packages (WPs) (RAFS);
- Results of the SGE Survey .
- A coded summary of individual key informant interviews undertaken in the context of the SGEs.

The report reflects limitations noted in the SGEs which affected reporting on effectiveness, since:

- the SGEs took place just two years after the launch of SG Initiatives in 2022, which is still too early to expect impact.
- neither the CGIAR Results Dashboard nor the structure of annual technical reporting allow for systematic comparison between planned contributions to impact areas and actual achievements.

1.1 Background and SG Evaluation Context

In accordance with the CGIAR-wide Evaluation Framework (2022) and the SGE ToR, the SGEs provided: 1) an independent assessment of the performance of the 2022-24 SG pooled funding portfolio; and 2) recommendations to foster organizational learning and to inform and enhance the design of the next portfolio through early findings. The list of evaluation questions can be found in the evaluation matrix (ToR) which was revised in each of the three SG inception reports.

The evaluation scope covered the SG Portfolio (and 33 Initiatives) from January 2022 to February 2024. The key users for the evaluation are the CGIAR System Council (through support in decision-making

processes), SG management (which will gain evaluative evidence to reinforce the evolution of the current portfolio and the design of the new one), senior leadership team and centers for learning and steering, and external partners, such as policymakers, national governments and National Agricultural Research and Extension Systems (NARES).

The CGIAR 2030 Research and Innovation Strategy established priorities to deliver solutions for development through 33 Initiatives across three interlinked Action Areas: ST, RAFS and GI. CGIAR scientists working on these Initiatives were organized into three corresponding SGs.[4]

The ST SG aims to transform food, land, and water systems across CGIAR s five Impact Areas, and to support policy and decision-makers at governance levels with timely policy-relevant insights. ST SG's efforts through 12 Initiatives aimed to improve market systems, decarbonize food production, enhance resilience, advance water security, improve diets, address gender and social inequality across value chains, improve data and tools to enhance foresight, measure impacts, and identify investment priorities.

The RAFS SG delivers on research priorities aimed at transforming agri-food systems to enable the most vulnerable to access affordable, sufficient, safe, and healthy diets. The RAFS SG leverages a broad range of internal expertise to address interconnected farm-level challenges affecting crop, livestock and aquatic systems. The 15 initiatives under RAFS SG delivered research and innovation across the following domains housing nine **Global Thematic Initiatives** (GTIs): 1) crop-based systems; 2) livestock-based systems; 3) aquatic food systems; and 4) biodiverse agro-ecosystems. Additionally, complex regional problems are addressed through six **Regional Integrated Initiatives** (RIIs), which are housed under RAFS and are designed to scale-up innovations in cooperation with local and regional partners.

The GI SG aims to improve food and nutritional security at global, national, and household levels by developing crop varieties that are resilient to changing conditions. These crop varieties conserve genetic diversity through a global multi-partner Genebank System (see IAES evaluation of the Genebank Platform). The GI SG focuses on place-based integration innovation, working closely with NARES worldwide to deliver improved varieties of crops and forages to small-scale farmers in specific geographic areas.

SGs were led by managing directors that were part of CGIAR s executive management and senior leadership teams. During the phase of developing the evaluation ToRs, the GI SG had a full-time director, while the leaders of RAFS and ST SGs held additional roles as the director—generals of CGIAR centers, ILRI and IFPRI respectively. Each thematic area under a SG was led by a senior director (five under RAFS, four under GI, four under ST) and included several thematic units which collaborated on initiatives. Each SG has a Monitoring, Evaluation, and Learning (MEL) focal point; however, none were on a full-time basis.

1.2 Scope of CGIAR's Climate Portfolio

The CGIAR 2030 Research and Innovation Strategy designates climate as one of five global Impact Areas, with the three aforementioned SGs expected to contribute collectively through their respective work: GI, RAFS, and ST. The rationale for CGIAR action on climate change is in response to the risks posed by climate change to food systems, food systems emissions, and the potential for integrated solutions (see Relevance). The CGIAR s 2030 Strategy includes three collective global targets on climate, to which CGIAR would contribute through research, innovation, and capacity development (see Box 1).

[4] 2030 Research and Innovation Strategy.

The Portfolio of SGs in CGIAR is was delivered through 33 research Initiatives, including six RIIs falling under the RAFS, and 27 **Global Thematic Initiatives** (GTEs). Among them, these include six Initiatives that have had climate adaption and mitigation as their primary intended impact and a further 26 Initiatives where climate is addressed as a cross-cutting issue.

Box 1. CGIAR collective global 2030 targets for climate adaptation and mitigation

- Implement all National Adaptation Plans and Nationally Determined Contributions to the Paris Agreement.
- Equip 500 million small-scale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems.
- 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.

Source: *CGIAR 2030 Research and Innovation Strategy*

1.3 Definitions

Table 1. Definitions

Adaptation	In human systems, the process of adjustment to actual or expected climate and its effects, to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.[a]
Maladaptive actions (maladaptation)	Actions that may lead to increased risk of adverse climate-related outcomes, including *via* increased greenhouse gas (GHG) emissions, increased vulnerability to climate change, or diminished welfare, now or in the future. Maladaptation is usually an unintended consequence.[a]
Mitigation (of climate change)	A human intervention to reduce emissions or enhance the sinks of greenhouse gases.[a]
Resilience	The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure. Resilience is a positive attribute when it maintains capacity for adaptation, learning, and/or transformation (Arctic Council, 2016).[a]
Transformation (of food systems)	Significant re-configurations of the assemblage of food system activities, actors, outcomes, and relationships (dynamics) to move away from the current globalized industrial model and ensure sustainable, resilient, and just models of production and consumption.[b]

Source: [a] *IPCC WGII Sixth Assessment Report,* [b] *Juri et al. 2024*

2 Key Findings and Conclusions

Findings are structured by the evaluation criteria as reflected in the evaluation questions (Annex 2).

2.1 Relevance

2.1.1 Response to the Needs and Priorities of CGIAR's Internal and External Stakeholders

FINDING: At a global level, the CGIAR Impact Area on climate change responded to the priorities and commitments of the international community—including Sustainable Development Goal (SDG) 13, which calls for urgent action to combat climate change and its impacts, and the United Nations (UN) Framework Convention on Climate Change.

- Globally, the CGIAR Impact Area on climate change responded to the priorities and commitments of the international community, set out in 1) SDG 13, which called for urgent action to combat climate change and its impacts; and 2) the UN Framework Convention on Climate Change and its 2015 Paris Agreement. It was less effective in addressing the nexus of climate change, biodiversity loss, water insecurity, health and inequality as outlined by the Intergovernmental Platform on Biodiversity and Ecosystem Services IPBES.
- The climate resilience case study found that ST's Climate Resilience work was relevant to global climate resilience priorities as outlined in the IPCC 6th Assessment (2022), while also addressing national and local vulnerabilities to climate change, particularly in low- and middle-income countries.
- The strong focus on scalable solutions and innovations together with high level of interest in CGIAR's climate related publications (See QoS) underscored global relevance, particularly in the geographic regions where CGIAR activities are located.

FINDING: The immediate relevance of CGIAR s climate work at local, national, and regional levels depended on the applicability and utility of research findings, solutions, and innovations in the local context, as well as potential for scaling through partners. While the evaluations identified weaknesses, they also provided examples of well-received interventions at different scales.

- The ST SGE emphasized that transformation takes place at national and regional levels and concluded that there was a need for more systematic understanding gaps in national systems for CGIAR to be a more relevant and effective partner in the transformation agenda.
- SGEs underscored the importance of collaborating with representative local partners and stakeholders at the design stage, and the need for more targeted stakeholder engagement in aligning interventions with local needs and global objectives for impactful and sustainable development.
- When co-design with stakeholders was integral to research programs, it ensured that Initiatives addressed specific agrifood system needs, thereby enhancing the relevance of CGIAR's Portfolio.
- SGEs presented a critical perspective on the extent to which partners were consulted during the design of the individual Initiatives,[5] while noting that time for consultation was limited.
- Vulnerable populations (poor farmers and marginalized groups) were underrepresented in certain Initiatives. Financial constraints and short project cycles further limited outreach and inclusivity.
- Programs occasionally failed to balance short-term needs with long-term resilience goals. For example, adaptation strategies sometimes prioritized immediate gains (e.g., crop productivity) over transformative climate resilience approaches.
- Some interventions, like single-crop enhancements, inadvertently undermined long-term resilience goals by prioritizing immediate outputs over systemic adaptation.

[5] The evaluation survey presents a more positive perspective on engagement with partners.

- The ST SGE found that the extent to which research portfolios responded to national needs and priorities varied significantly across countries, with the establishment of inter-agency forums promoting co-designed priorities.
- The integration of climate change into other Initiatives (e.g., agroecology, water security, agro-biodiversity conservation and foresight modeling) remained underdeveloped. Better coordination and intentional collaboration across Initiatives were needed to fully realize CGIAR's potential in mitigation.
- SGE case studies, Initiative webpages, and annual reports included examples where relevant climate-related interventions, which achieved multiple outcomes, were successfully implemented in collaboration with a wide range of partners. These examples offered valuable lessons for the design of programs aiming for triple goals of adaptation, mitigation, and agro-biodiversity conservation. For example, the adoption of climate smart agriculture in the north-east of Colombia supported biodiversity conservation, reduced emissions from land use change, increased carbon sequestration, and enhanced the adaptive capacity of beneficiaries. It contributed directly to the Colombian government's goal to halt deforestation by 2030.

FINDING: RIIs offered strong potential for scaling up of innovations and solutions. However, it is still too early to determine to what extent they played this role.

- RIIs were intended to function as a key vehicle for the co-design, co-delivery, and scaling of innovations, capacity development, and policy change with local and regional partners.[6]
- All six of CGIAR's RIIs included a principal or significant objective on adaptation, and five included a principal or significant objective on mitigation. Evaluations confirmed that these Initiatives were designed based on decades of previous CGIAR research work on agrifood systems, which contributed to their high regional relevance.
- While it is too early to determine to what extent the RIIs served as a vehicle for scaling up innovations and solutions, their potential was demonstrated in longer-running multi-country projects such as Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA).

2.1.2 Articulation of Strategies and Objectives in Theory of Change and Impact Pathways in SGs

FINDING: While the rationale for CGIAR action on climate change is clearly established based on climate risks and potential for integrated solutions, theories of change (ToCs) and measurement frameworks require further development. (See Box. 2)

[6] Read more in the report on 2023 RII Evaluability Assessments (under RAFS SG).

Box 2. CGIAR collective global 2030 targets for Climate Change Adaptation and Mitigation and rationale for the CGIAR Climate Change Agenda Area

- Climate change poses major risks for food production, livelihoods, and nutrition through high temperatures, erratic rainfall, drought, flooding, and rising sea levels.
- Agriculture and food systems produce almost a third of global greenhouse gas emissions—yet they could be a global carbon sink.
- Supporting vulnerable small-scale producers to adapt to climate change, and reducing greenhouse gas emissions from agrifood value chains, are essential for sustaining food systems and ensuring food and nutrition security.

The CGIAR 2030 Vision and Strategy further notes:

- Climate-related disasters could displace 200 million people by 2050.
- Projections show that 2°C warming will result in an additional 540–590 million people undernourished globally by 2050.

FINDING: The CGIAR Research and Innovation Strategy provided a roadmap to guide and align efforts towards its 2030 impact level targets, including those for Climate Change Adaptation and Mitigation, but failed to address the assumptions that would drive progress from outputs (described as within CGIAR s zone of control) to outcomes (zone of influence) and impact (zone of interest).

- The CGIAR 2030 Research and Innovation Strategy set out three ambitious global targets for the climate Impact Area, to be achieved through three main impact pathways: science-based innovation, technical capacity development, and advice on policy.
- The impact pathways are substantiated with reference to the benefits (at output and outcome level) for each of the SGs to deliver towards the five CGIAR Impact Areas, including Climate Adaptation and Mitigation. However, the development of clearer, shared conceptual frameworks and metrics for Climate Change Adaptation and Mitigation would improve track progress and achievements across SGs.

Table 2. Anticipated SG contributions to the Climate Impact Area

Science Group	Narrative
ST	Scientific evidence, climate-smart solutions, and innovative finance that feed into local, national, regional, and global processes governing land use, land restoration, forest conservation, and resilience to floods and droughts, contributing to climate action, equity, peace, and security.
RAFS	Co-development of production systems and portfolios of practices, adapted to the local needs of small-scale producers to enhance their adaptive capacity while reducing emissions; provision of affordable and accessible climate-informed services, particularly using digital tools.
GI	Adaptation to a changing climate through adapted breeds and varieties, for example heat-tolerant livestock breeds, strains and crosses; drought-tolerant

Science Group	Narrative
	maize; and heat tolerant beans. Inclusion of long-term accessions in genebanks to provide solutions for future climates.

Source: CGIAR 2030 Research and Innovation Strategy

- On the SGE survey question regarding CGIAR strategies, over 83% of internal and external respondents agreed that, in the face of climate change, CGIAR articulated its strategies and interventions effectively for system transformation. Only 10% of the 286 respondents disagreed or strongly disagreed with this statement. (SG Evaluations Survey)
- While the overall global intervention strategy was considered coherent and convincing, the SGE reviews of individual SG ToCs identified a range of issues, including gaps in evidence, insufficient articulation and exploration of assumptions, limited narrative explanation, insufficient time to share common understandings of complex concepts, and difficulties in planning and reporting linked to the absence of targets and indicators in related results frameworks.
- The development of 33 Initiative ToCs in a short timeframe was an important success, though concerns were raised over insufficient internal and external consultation. Interviews also revealed that there was uncertainty around funding and timeframes for delivery and associated accountability.

FINDING: CGIAR s comparative advantage in the climate change arena was derived as much from its established approaches as from its research excellence. Weaknesses included its limited capacity to integrate the social dimensions of climate change adaptation, and conflating the impact pathways of Climate Change Adaptation and Mitigation.

The Climate Resilience case study under ST SG identified CGIAR s **comparative advantage** in the climate change arena as rooted in its ability to:

- integrate mitigation and adaptation goals with broader food system transformation, fostering relevance at local, global, and regional levels
- forecast climate-related trends and their impacts on food systems, using scenario approaches
- provide evidence of impacts of climate change on people and food systems, and evidence of effectiveness of adaptation policies and strategies
- develop and implement innovative, scalable solutions based on 50 years of experience working on sustainable food systems globally, nationally, and locally
- work with reliable partners in research, development, and implementation of solutions to adapt food systems to the negative impacts of climate change.

In contrast, the case study found that CGIAR **does not** have a proven comparative advantage in:

- climatology *per se*, beyond the confines of the links between climate and food systems
- social dimensions of climate change adaptations; human behavioral factors (including behavioral economics) affecting the adoption of climate change adaptation innovations; direct and indirect cost-benefit analysis of climate adaptation innovations and responses
- implementing climate change adaptation interventions on the ground—working directly with farmers and communities

- innovations in frontier technologies, notably AI, solar photovoltaics, genome editing, and nanotechnology, to enhance the resilience of food systems to climate change while reducing their greenhouse gas emissions.

2.2 Effectiveness

2.2.1 Integration of Climate Change as a Cross-Cutting Theme into Design and Implementation

FINDING: Climate Change Adaptation and, to a lesser extent, Mitigation, was systematically considered in the design of Initiatives and is reflected in their outcome statements.

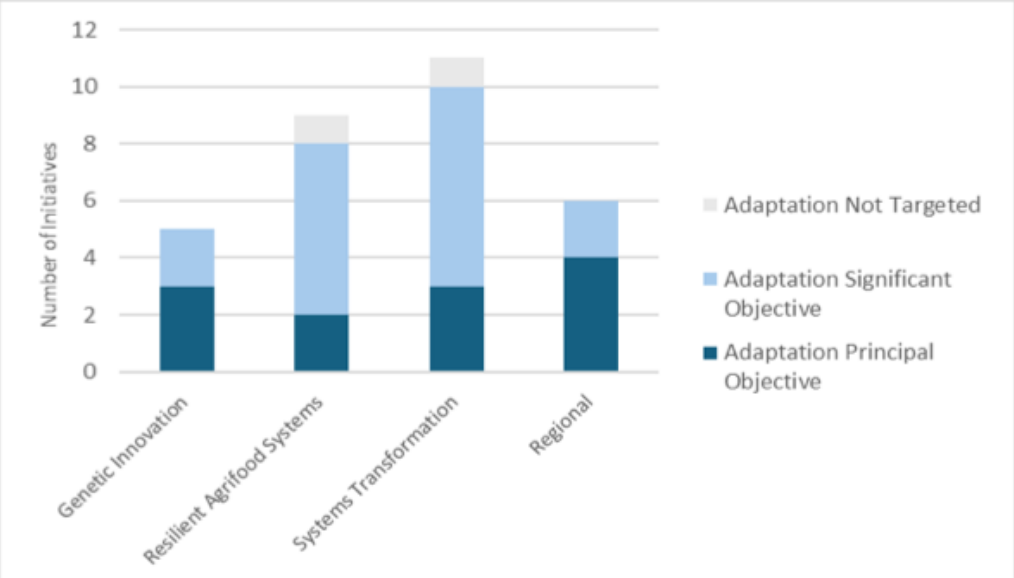
- Six of the 33 Initiatives were primarily associated with the climate Impact Area: two Initiatives under the ST SG (#23 Climate Resilience and #32 Low Emission Food Systems) and four under the RAFS SG, including three RIIs (#34 Livestock and Climate, #10 Fragility to Resilience in Central and West Asia, #18 Asian Mega Deltas, and #21 Diversification in East and Southern Africa).
- Climate change was systematically addressed in the Initiative proposals through a dedicated impact statement that explains how each of work programs will contribute to the climate Impact Area.
- The CGIAR Initiatives Dashboard, based on a review of the Initiatives using the OECD-DAC markers for climate action, indicated that all but one of the 31 Initiative proposals included in the CGIAR Initiatives Dashboard anticipate alignment and contribution to the climate Impact Area (Box 3).

Box 3. Consideration of climate change in CGIAR Initiative proposals

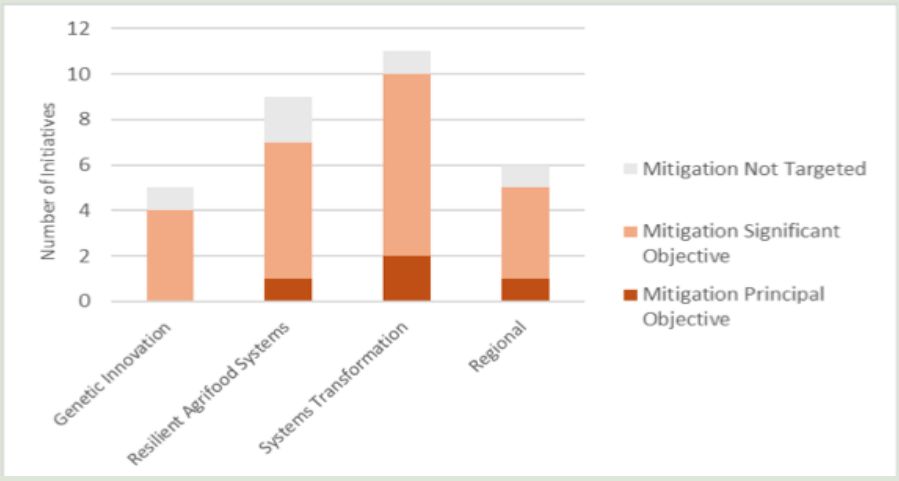
A review of 31 proposals using the OECD-DAC markers for climate action revealed that 12 Initiatives included Climate Adaptation as a principal objective and a further 17 include adaptation as a significant objective. Climate change mitigation was a principal objective in four Initiatives and a significant objective in 22.

Consideration of climate change in the CGIAR Initiative proposals: 1) Adaptation and 2) Mitigation:

1) Adaptation



2) Mitigation



Source: CGIAR Initiatives Explorer (Accessed 9 September 2024)

FINDING: While Initiatives demonstrated innovative practices, challenges in embedding scalability readiness limited their impact on broader systems transformation.

- Many projects demonstrated potential for scaling but often stopped short of delivering transformative solutions due to insufficient resources and coordination. Box 4 details opportunities and challenges associated with scaling climate-related solutions and innovations that were identified during the evaluations.

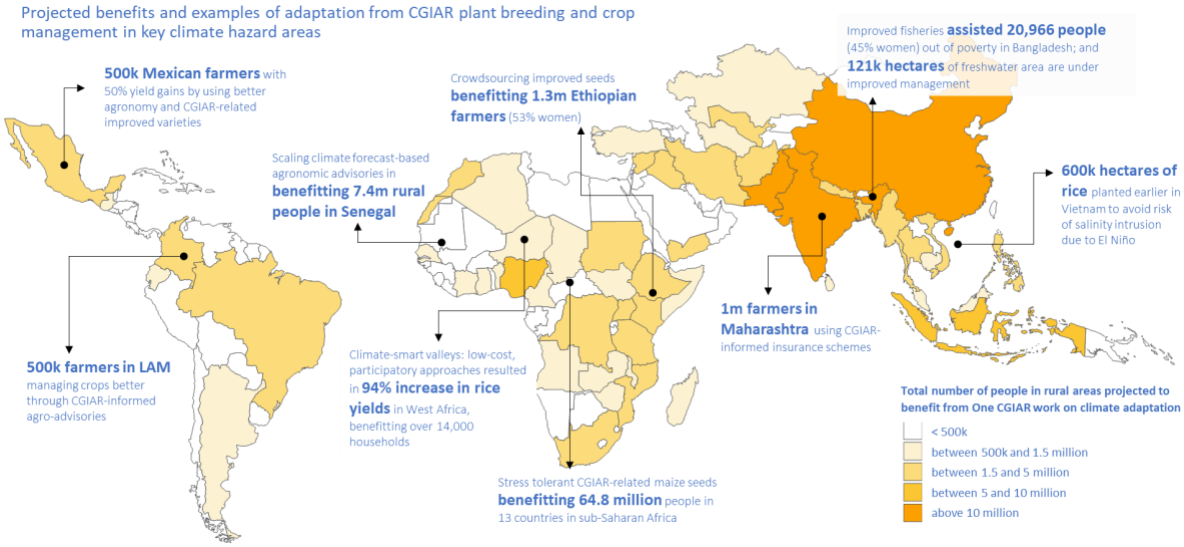
2.2.2 Achievement of Climate-Related Objectives

FINDING: While the Initiative proposals quantified their projected contributions (or benefits) against the collective global targets, there was no systematic reporting at this level. Nevertheless, there was clear evidence of meaningful delivery and scaling toward CGIAR's climate objectives across all CGIAR regions, but with significant room for improvement through better coordination.

- The CGIAR 2030 global targets (Box 1) were quantitative in nature. However, they were set at impact level (in CGIAR's zone of influence) implying uptake and scaling of solutions by a wide range of external parties, which would be difficult to track and measure, especially in the short term.
- SGs were expected to deliver multiple benefits across each of CGIAR's five Impact Areas, including Climate Change Adaptation and Mitigation. The climate-related benefits identified for each of the SGs in the CGIAR 2030 Research and Innovation Strategy are strategic rather than quantitative in nature and are not yet readily measurable, indicating the need for climate-specific indicators and monitoring protocols.
- Each of the individual Initiative proposals includes a quantified projection of benefits for each of the impact areas which was mapped against the indicators for CGIARs Global Targets (e.g., number of people benefiting from climate-adapted innovations). Project benefits were qualified as transformative or significant, and by level of certainty, yet without clearly-defined assessment criteria—which must now be developed.

- There was no system-wide reporting against the CGIAR Collective Global 2030 Targets or the Initiatives' projected contributions to those targets.[7] Nevertheless, the Key Results Stories from the Initiative and Impact Platform Annual Reports, together with highlighted results on the Initiative and Platform webpages, provide numerous examples of contributions to the climate targets, particularly those around resilience and adaptation (Figure 1).

Figure 1. Examples of impacts of climate-action-related investments



Source: Presentation by Dr. Aditi Mukherji, Director, CGIAR Climate Change Impact Platform (2024)

Box 4. Scaling opportunities and challenges

Opportunities for scaling

1. **Leveraging Proven Innovations:**
   - CGIAR Initiatives such as low-carbon rice farming and agroforestry demonstrated scalability potential.
   - Programs like AICCRA and Mitigate+ showcased replicable frameworks for climate-smart agriculture and carbon sequestration.
2. **Strong Partnerships**:
   - Collaborations with NARS, private sector actors, and global institutions offer platforms to scale innovations.
   - The use of participatory approaches in co-designing solutions enhanced stakeholder ownership, increasing the likelihood of successful scaling.
3. **Policy Alignment**:
   - Engagement with national and international policies facilitate the integration of CGIAR's outputs into broader development strategies.
   - Nationally Determined Contributions (NDCs) and global frameworks like the IPCC provide pathways to embed CGIAR's innovations into climate agendas.
4. **Digital and Data-Driven Approaches**:
   - Expanding digital innovations, such as foresight modelling, supports data-driven decision-making and showcases scalable models for climate resilience.
5. **Capacity Building and Knowledge Sharing**:
   - Investments in training and capacity-building programs create local expertise, ensuring sustained adoption of innovations.

[7] The Initiatives report annually against their end-of-initiative outcomes and WP targets. While these may contribute to CGIAR's global targets, they are not explicitly or necessarily aligned to these.

Scaling Challenges

1. **Resource Constraints**:
   - Inadequate and unpredictable funding cycles often delay implementation and scaling efforts.
   - Budget cuts have limited outreach, especially to marginalized communities, and hinder scaling readiness assessments.
2. **Institutional Fragmentation**:
   - Lack of structured collaboration between Initiatives creates inefficiencies and missed synergies, reducing the impact of scaling efforts.
   - Overlapping mandates among Initiatives and unclear leadership roles further complicate scaling strategies.
3. **Inclusion and Equity**:
   - Marginalized populations, such as women and poor farmers, are often under-represented in the adoption of scaled innovations.
   - Barriers to accessing niche markets (e.g., organic certification) and lack of inclusion in policy processes impede equitable scaling.
4. **Complexity of Systems Integration**:
   - The integration of biophysical, social, and economic dimensions remains limited, challenging the scaling of holistic, system-wide solutions.
   - Insufficient alignment between research outputs and policy timelines hampers the uptake of innovations in governance frameworks.
5. **Quality of Research and Data Gaps**:
   - Limited long-term data on scaled solutions reduces confidence in their applicability across diverse agroecological zones.
   - Concerns over intellectual property rights and equitable authorship create tensions in partnerships, affecting scalability.

- Reporting against targets was further confounded by the blurring of distinctions between climate resilience, transformation, adaptation, and mitigation in CGIAR documentation, and in the generic coding of 'climate change' in dashboards and databases.

FINDING: Consideration of climate change during implementation was evident in the number and proportion of CGIAR outputs and outcomes identified with the climate Impact Area and/or tagged as climate-related on the CGIAR Results Dashboard.

- With regard to potential effectiveness, a review by the Climate Impact Area Platform of climate tagged outputs found that 119 of the 400 'climate principal' knowledge products in 2022 (30%) can be classified as 'solutions'–which range from climate-resilient seeds and breeds, to technologies, institutions, and policies that help small-scale producers adapt to climate change and reduce emissions from various sub-sectors such as livestock, fertilizers, and rice paddy cultivation.[8] A further 135 addressed 'science for collating methodologies or innovating new methods' to understand various aspects of climate change, and 62 addressed 'science for understanding' the impacts of climate change on crops, livestock, trees, ecosystems, regions, and people (women, men and youth).[9]
- A study of 105 peer-reviewed knowledge products produced in 2024 revealed a growing focus on solutions (Figure 2). 53 products addressed 'solutions' for adapting to or helping to mitigate climate

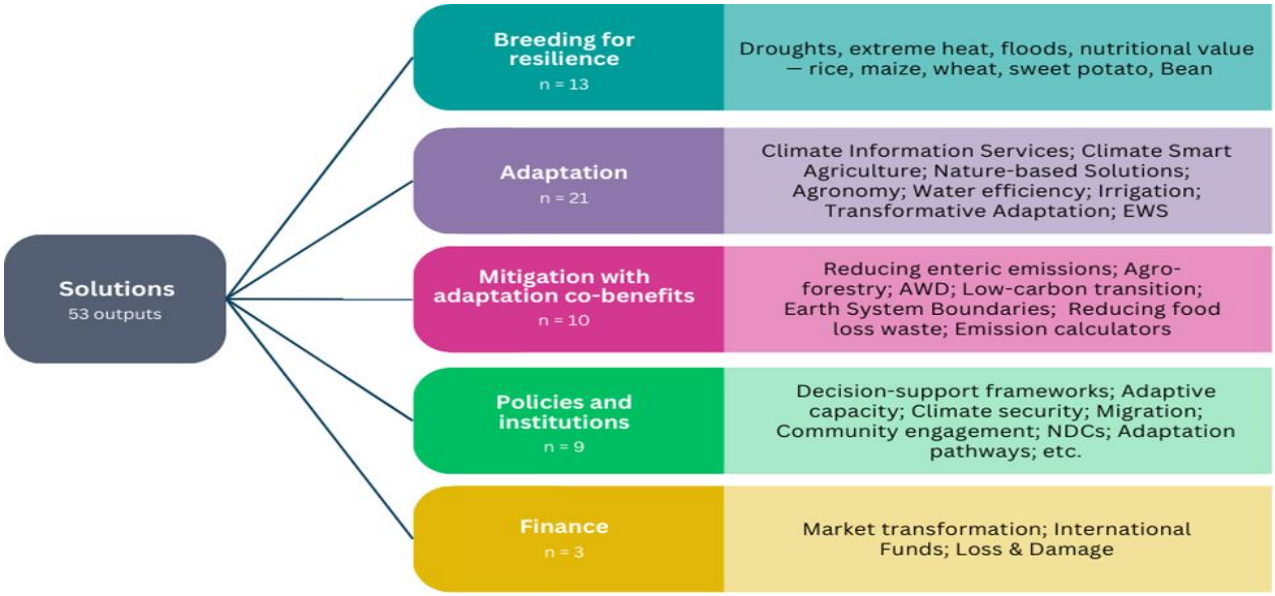
[8] The solutions can be categorized as adaptation; mitigation; mitigation with adaptation co-benefits; policies and institutions; and finance solutions.

[9] The failure to distinguish between adaptation and mitigation, and the omission of potential maladaptive outcomes, are however key shortcomings of the tagging.

change; 40 addressed 'science for collating new methodologies"' and 44 addressed 'understanding the impacts of climate change'.

- While there was increasing evidence of maladaptive solutions in food systems (Kerr, 2023), this risk was not acknowledged in the tagging of CGIAR research.

Figure 2. CGIAR's 2023 climate-related outputs focused on climate solutions



Source: Aditi Mukherji

FINDING: Many of the successes reported in 2022 and 2023, particularly those associated with uptake and scaling, build on a legacy of earlier work delivered under CRPs. Work delivered during 2022-24 can also be expected to yield longer-term results.

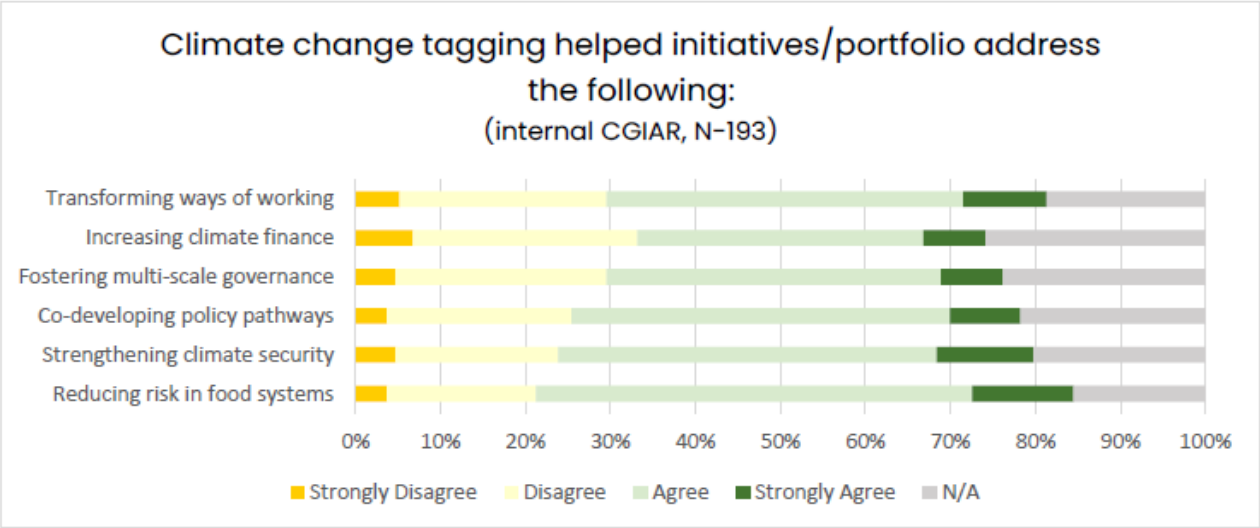
- The two-year period under evaluation was insufficient to look comprehensively at results, with new Initiatives taking time to establish.
- Many of the results (outputs and outcomes) generated in 2022 and 2023 were the culmination of work initiated under the CRPs—the norm in all research organizations.
- Climate-tagged work on CGIAR's Results Dashboard included a wealth of outputs and outcomes that will provide a foundation for longer-term contributions. Examples of work (including bilaterally funded work) demonstrating the potential for scaling include:
    - **NEXUS Initiative work** on strengthening governance at multiple scales, further demonstrating how multi-faceted strategies can be effectively scaled to address the complex, interconnected challenges of climate change adaptation
    - **AICCRA**, a project building on long-running partnerships and legacy knowledge products to replicate climate-smart agriculture interventions at regional level
    - **Climate-Smart Agriculture Framework in Ethiopia**, which outlined a structured approach involving stakeholder consultation, identification of scaling domains, and community engagement, enabling targeted planning and differential impacts based on regional conditions

- The leading role of **CGIAR in Kenya in supporting in multi-sectoral climate adaptation platforms**, involving national researchers, policy actors, and local farmers.

FINDING: Though not comprehensively applied, results tagging provided a systematic approach for accessing information on climate-related work, and was recognized as potentially instrumental in enhancing outcomes, including reducing risk in food systems. Distinguishing between Climate Change Adaptation would add further value to this approach.

- Most respondents to the SGE survey found that tagging of relevant results on the CGIAR Results Dashboard was beneficial. (See Figure 3).

Figure 3. Benefits of results tagging



- Over half of evaluation survey respondents agreed or strongly agreed that climate change tagging helped Initiatives across the CGIAR Portfolio to reduce risks within food systems (63%), to strengthen climate security (56%), and to co-develop policy pathways (53%).
- Fewer than half of the 193 respondents agreed with the statements that climate change tagging: 1) helped increase climate finance; and 2) fostered multi-scale governance. A high number of respondents selected 'N/A' in this area, indicating that they may not be familiar with the effects of climate change tagging in these two areas.

- Tagging was not comprehensively applied, and there is a risk that some important outputs—including peer-reviewed publications—were overlooked in searches and synthesis.
- More detailed tagging of significant outputs—distinguishing climate adaptation, maladaptation, transformative adaptation, and mitigation—would facilitate internal and external access to information.

2.3 Efficiency and Coherence

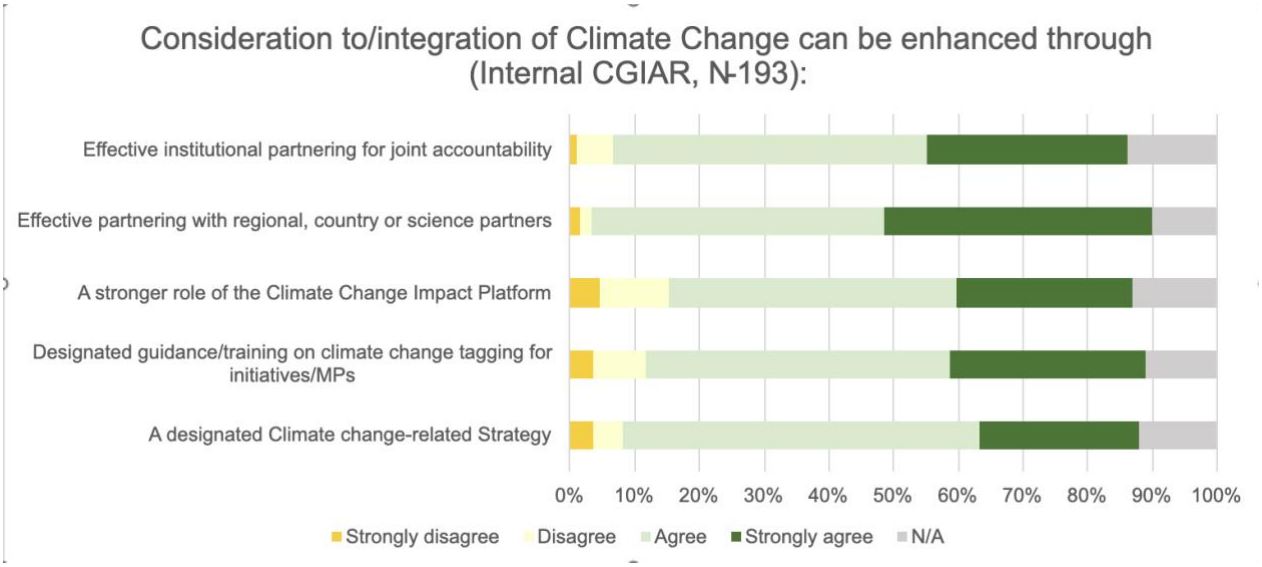
2.3.1 Suitability of Governance and Management Arrangements

FINDING: Views differed on the extent to which there is a common understanding of the mandate and role of the three SGs/Action Areas in relation to the five Impact Areas (platforms). Amongst practical

measures to support climate integration, 80% of survey respondents supported the developed of a dedicated climate change strategy.

- There were no dedicated mechanisms for governance and management of the CGIAR Impact Areas, with the Impact Area Platform (see below) playing a secondary role to the management structures in place for the SGs and Initiatives, to centers, and to regional and country coordination functions.
- Overall, 62% of respondents to the evaluation survey agreed or strongly agreed that there was a common understanding of the mandate and role of the three SGs/Action Areas in relation to the five Impact Areas (platforms). However, 27% of the 325 respondents who addressed this question, disagreed or strongly disagreed.
- A majority of 193 internal CGIAR survey respondents agreed or strongly agreed with each of a set of suggested measures to enhance integration of climate change into CGIAR research (Figure 4), with over 86% of respondents agreeing or strongly agreeing that consideration/integration of climate change can be enhanced through effective partnering with regional, country or science partners. Nearly 80% agreed with statements supporting a designated climate change-related strategy; designated guidance/training on climate change tagging for Initiatives/SPs, and effective institutional partnering for joint accountability, while just over 70% of respondents agreed that a stronger role for the Climate Change Impact Platform would support integration.

Figure 4. How to enhance integration of climate change into CGIAR research



2.3.2 Relationship Between SGs and CGIAR Climate Adaptation and Mitigation Impact Area Platform

FINDING: The Climate Impact Area Platform was a good example of a systematic approach for collaborative effort across Initiatives, with the associated Community of Practice (CoP) serving to bring researchers and outputs together and for linkage to key external constituencies. The Platform's short-term effectiveness was limited by its late start, short duration, and implementation difficulties.

- Overall, 72% of respondents to the SGE survey agreed that a stronger role for the Climate Change Impact Platform could enhance consideration/integration of climate change. However, 16% of the 194 respondents disagreed or strongly disagreed with that statement (10% of RAFs respondents, 20% of GI respondents and 21% of ST respondents): a notably higher proportion than for the other measures suggested in the questionnaire (see Figure 4 above).
- Interviewees variously noted that there was confusion regarding the role of SGs in relation to the Impact Area platforms, and a lack of clarity on how the platforms were expected to engage effectively with SGs and initiatives given their limited capacity, experience, and resources.

FINDING: While coherence in Climate Resilience research was achieved though alignment with CGIAR s Impact Area, timely involvement of the Climate Impact Area Platform in research planning may have enhanced its integration.

- In RAFS SG, coherence in Climate Resilience research was weakened due to the Initiatives' broad and diverse range of topics.
- The ST SG evaluation found that earlier involvement of the Platform in research planning may have strengthened integration by embedding key considerations from the outset, improving coherence across SPs, and better leveraging CGIAR's comparative advantage, addressing climate change through its extensive networks and expertise.
- The ST SG Climate Resilience case study found that coherence in Climate Resilience research held promise at the design stage (at SG level) through strategic alignment with overarching goals.

Box 5. About the CGIAR Climate Adaptation and Mitigation Impact Area Platform

The Climate Impact Area Platform set out to bring together CGIAR s climate research by convening a CoP and fostering global critical thinking, advising on portfolio level management and strategy, amplifying the external profile of CGIAR s work on climate, and deepening CGIAR and partners' capacity by facilitating research on gaps. The Platform became operational in November 2022, when the newly appointed director started on a part-time basis. That director began working on a full-time basis in March 2023, while a Platform manager and administrative assistant were appointed only in April 2024. Platform activities included:

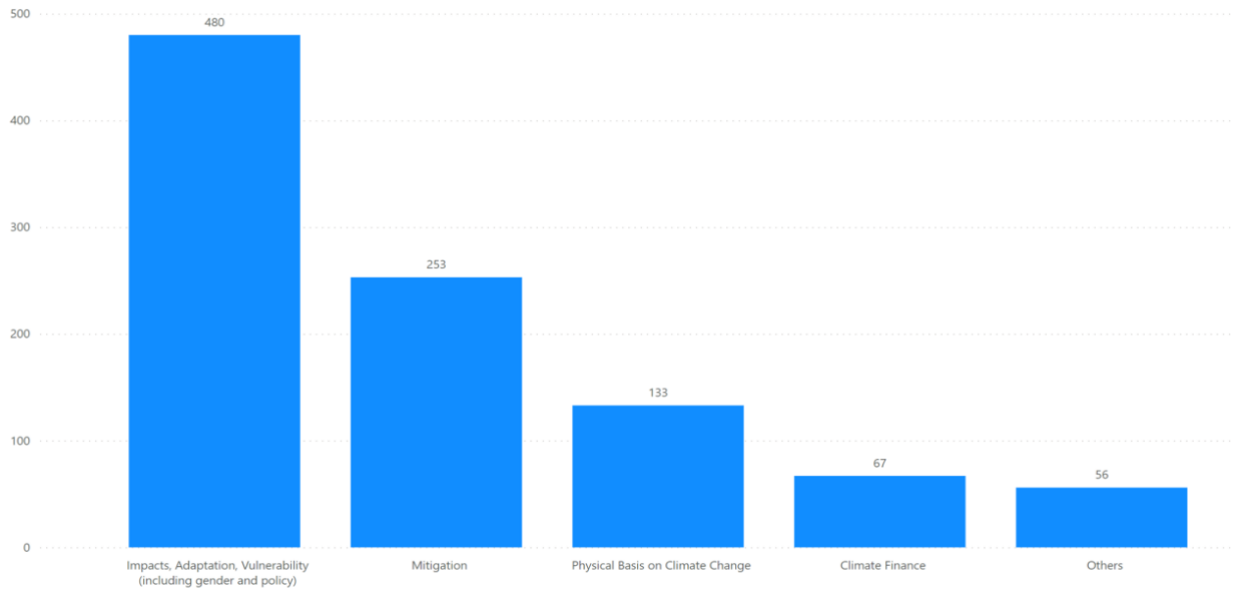
- A review of CGIAR's climate portfolio in 2022 and 2023
- A survey of CGIAR scientists, including their geographical focus and areas of specialization
- Establishment of a CoP with over 600 members, growing to 650 in 2024.

Starting in 2024, launch of: (1) a two-monthly Platform Newsletter; (2) a bi-monthly roundup of relevant climate change publications that have implications for the CGIAR's work; and (3) a webinar series, including presentations by external experts.

2.3.3 Rollout of CGIAR's Integration Framework Agreement

FINDING: Nearly 600 scientists affiliated with 12 CGIAR centers joined the CoP established by the Climate Impact Area Platform in 2023, with geographical expertise across all CGIAR priority regions. Some 80% of the CoP members registered expertise in climate impacts, adaptation and vulnerability (including gender and policy), compared to just over 40% in mitigation (Figure 5).

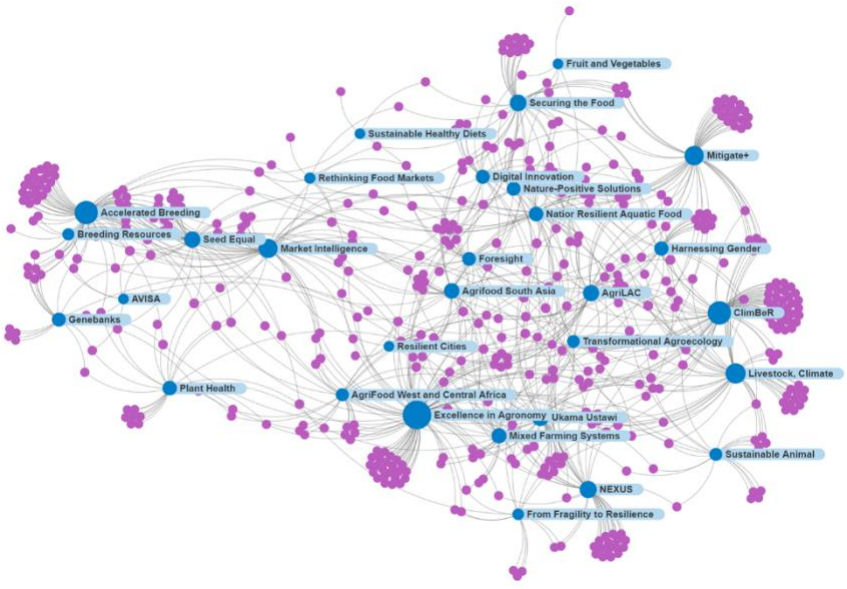
Figure 5. Climate scientists by topic of expertise



Source: PowerPoint Presentation, Aditi Mukherji, March 2024 (Image cut from PowerPoint)

FINDING: The Climate Impact Area Platform survey of climate scientists highlighted that climate scientists engaged across 30 CGIAR Initiatives, with many scientists involved in more than one Initiative (Figure 6)—an incidental but nevertheless important vehicle for collaboration between and amongst Initiatives.

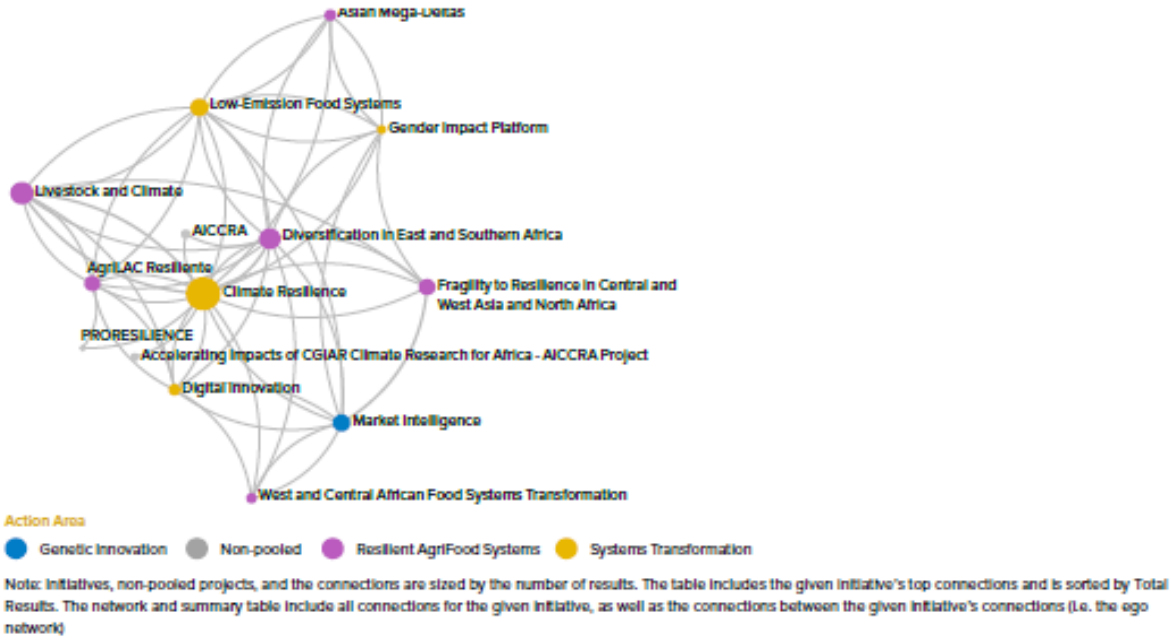
Figure 6. Linkages of CGIAR climate scientists to different CGIAR Initiatives



Source: PowerPoint Presentation, Aditi Mukherji, March 2024 (Images cut from PowerPoint)

The Initiative's annual reports provided similar evidence of reach and integration across SGs and Initiatives, as illustrated in Figure 7 from the ClimBeR 2022 Annual Report. Mechanisms employed to enhance collaboration included organization of joint workshops with other Initiatives, mapping of synergies, and active engagement of ClimBeR country coordinators in priority countries.

Figure 7. ClimBeR collaboration with other CGIAR Initiatives



Source: ClimBeR Annual Report 2022.

FINDING: Compared to the previous CRP structure,[10] the SG/Initiative structure facilitated deeper and higher quality cross-center programmatic collaboration within Initiatives, drawing together diverse skills and funding from across CGIAR to address key research topics. However, several barriers to effective collaboration remain.

- While there are many good examples of cross-Initiative and cross-center collaboration, implementation challenges such as siloed operations and competition for resources often hindered collaboration and coherence—a situation exacerbated by the unpredictable funding environment.
- The RAFS SG evaluation found that despite a clear corporate commitment to enhanced research integration and cross-center cooperation, guidance from SG leadership to plan and implement such cooperation, synergies (at SG level and across SGs), and interactions with Impact Platforms was weak, and often depended on the direction provided by Initiative leads and co-leads and on relationships among colleagues.
- ST struggles with cross-disciplinary integration in addressing the complex challenges of climate resilience, with a particular shortcoming in bridging the biophysical, social, and economic sciences—beyond policy work—to provide solutions to climate vulnerability across entire value chains.

[10] Synthesis of Learning from a Decade of CGIAR Research Programs and CRP Evaluative Reviews 2020.

- The GI SGE identified a gap in considering how crops will be grown in specific cropping systems, leading to a potential misalignment with RAFS and ST groups, and a missed opportunity to tackle climate resilience along with better nutrition, and environmental health.
- Governance structures were generally suitable for managing mitigation-focused initiatives. However, inefficiencies arose from overlapping mandates and siloed operations across initiatives, which led to duplication of efforts. For example, interviews in Kenya showed that Initiatives working in the same localities often had different modes of operation with inadequate communication and coordination between them, which confused stakeholders.
- There was clear evidence of quality outcomes of collaborations in joint outputs, including peer-reviewed publications.

2.3.4 Internal and External Factors Influencing SG Efficiency within a System of Fully Independent Centers

FINDING: The large discrepancy between the planned and approved budgets and the increased administrative burden associated with cross-center working and monitoring and reporting affected efficiency during 2022 and 2023.

- The SGEs reflected that the delivery of 33 Initiatives, including those addressing climate as the primary theme and those addressing climate in a cross-cutting manner, was affected by a range of internal factors, including:
    - large discrepancies between planned and approved and cut budgets, leading to some Initiatives reducing their geographical scope or level of ambition
    - uncertainty surrounding budgets and delays in receipt of funding relations with partners
    - increased administrative burden and accompanying transaction costs (compared to the CRPs) associated with working across multiple centers and demanding monitoring and reporting requirements
    - delays in establishment of SGs and Initiatives
    - expectations that staff will play multiple roles (Initiative leads, co-leads, country coordinators)
    - Uncertainty around the duration of Initiatives and how this would affect staffing and longer-term research activities.
- Despite these constraints, SGs used limited resources as efficiently as possible by leveraging partnerships and optimizing existing capacities, particularly through RIIs. For example, Initiatives like AICCRA successfully pooled resources to deliver climate information services and technologies to smallholder farmers. Initiatives adapted to financial uncertainties by mobilizing bilateral funding and reallocating budgets.
- SGs effectively engaged with NARS and other local partners, enhancing the cost-effectiveness of adaptation strategies. However, the lack of systematic coordination between thematic and regional Initiatives, and lack of guidelines around intellectual property and division of funding, reduced efficiency gains from collaboration.
- Regarding external factors:

- Work in some regions was constrained in the first half of 2022 by restrictions associated with the continuing COVID-19 pandemic.
- Partners were also affected by increased CGIAR transaction costs that resulted in higher overheads, and by the uncertainty surrounding budgets, with some partners indicating that this has diminished the comparative advantage that CGIAR enjoyed as a long-term partner.
- Initiatives were resilient to external challenges, such as fluctuating donor priorities and socio-political conditions. However, these challenges frequently impacted cost-effectiveness, requiring greater adaptability in governance and management.

2.4 Quality of Science

2.4.1 Management Processes to Ensure QoS of Research and Operations

FINDING: The evaluation case studies indicated that management processes were sufficient to ensure credibility, legitimacy, and relevance of research and operations, despite limited time for consultation with partners at the design phase.

- The Climate Resilience case study found that the ST SG maintained high scientific quality through robust management, credible methodologies, research partnerships, stakeholder engagement, and capacity building. ST tried to promote consistency and reliability in its research outputs promoting standardized methodologies and shared protocols across centers, but this came at a cost to researchers' time. The case study emphasized the role and shortcomings of interdisciplinary approaches and practical applicability in enhancing the legitimacy and impact of research outputs.
- Credibility was rooted in evidence-based methodologies and the production of substantiated and verifiable results, and—at least for journal articles—by the peer review process. Credibility was strengthened through building on prior research, use of established methodologies, and engagement with scientific peers.
- ST enhanced the legitimacy and relevance of its scientific efforts through active engagement with local stakeholders, integrating local knowledge into science, and aligning research objectives with the needs and realities of communities.
- The RAFS case study similarly underscored the importance of stakeholder engagement, noting that scientists and their national partners appreciated co-design and co-implementation with national partners. Consultation with partners at the design phase of Initiative was however compromised by the limited time available for co-development.

2.4.2 Quality and Influence of Research Outputs

FINDING: Peer-reviewed outputs related to the Climate Change Impact Area were of high quality, with papers published in high quality journals, generating relatively high Altmetric Attention Scores (AAS) and downloads.

- The Climate Resilience case study found that the ST SG's commitment to high-quality science ensured effective responses to global agricultural and climate resilience challenges, significantly contributing to SDGs. This approach strengthened CGIAR's leadership in food systems' resilience to climate change (Box 6).

- The ST SG evaluation found that exposure to different ways of working and collaboration with external teams was key to adopting a systems approach. Co-authored publications with globally recognized researchers (e.g., under the IPCC) led to more widely cited papers in high-impact journals, especially on multidisciplinary and conceptual topics.
- The Climate Resilience case study identified the need for better integration of research findings into policy, while noting that there was a sometimes a tension between the desire to ensure timely release of policy-relevant results and the need to ensure scientific rigor through slow peer review.
- A high proportion of CGIAR papers related to climate was primary research. A comprehensive 10-year review by the Climate Impact Platform identified 3466 papers that refer to climate, including 2850 primary research papers.
- Climate Change research produced high quality, credible papers in high impact journals (2023-2024), downloaded on average 125 times per article, with many papers attracting over 1000 downloads (Table 3).[11]
- The Livestock and Climate and Low Emissions Food Systems Initiatives were amongst those whose top journal publications scored highest in terms of AAS and captures, providing an indicator of scientific and popular interest in these topics.

Box 6. Examples of high-quality climate-related outputs from SGs

Technical outputs

- Mechanized direct seeding for farming efficiency and reduced carbon footprint in rice production in Vietnam.
- Early warning systems for drought, using monitoring and forecasting systems and drought indices to effectively track climate change impacts, directly addressing the challenges identified by the IPCC.
- The Low-Emission Food Systems (Mitigate+) Initiative integrated GHG emissions calculations into carbon credit applications, demonstrating the practical application and credibility of its research.

Publications: Climate change research produced high quality, credible papers in high impact journals which were downloaded on average 125 times per article, with many papers attracting over 1000 downloads.

Source: QoS Cross Cutting Study

Table 3. AAS and knowledge products published in 2022 and 2023

Knowledge product portfolio category[1]	Total knowledge products	Tweets	Facebook	Blogs	Posts	News	AAS and captures for top journal publication in each portfolio category
Total portfolio	**1,212**	**18,000**	**151**	**313**	**23,929**	**1620**	**4220/268K**
Livestock and Climate	70	972	2	24	1,315	71	284/18,000
Climate Resilience	24	178	4	6	264	31	158/3.200

[11] QoS Cross Cutting Study of SGs, 2024, IAES. https://iaes.cgiar.org/evaluation/publications/evaluations-science-groups-synthesis-quality-science

Knowledge product portfolio category[1]	Total knowledge products	Tweets	Facebook	Blogs	Posts	News	AAS and captures for top journal publication in each portfolio category
Low Emission Food Systems	60	1,461	4	42	2,006	178	734/110,500

Source: QoS Cross Cutting Study

Challenges to quality include:

- insufficient representation in field trials for adaptation technologies across diverse agro-ecological zones, reducing the generalizability of findings;
- limited efforts to incorporate GHG metrics into foresight modeling and digital tools, reducing the potential for comprehensive assessments of mitigation impacts;
- insufficient integration of mitigation strategies with socio-economic dimensions (gender and equity).
    - lack of unified guidelines for intellectual property and authorship occasionally created tensions in partnerships, affecting the perceived legitimacy of collaborative outputs.
- While some Initiatives successfully combined biophysical and socioeconomic sciences, many struggled with full interdisciplinary integration. This gap limited the applicability of research to complex, real-world adaptation challenges. For example, adaptation efforts often lacked a comprehensive value-chain approach and seldom spanned several spatial and temporal scales. Greater integration with socio-economic and foresight dimensions is required to enhance comprehensiveness.
- The lack of structured collaboration between Initiatives hindered synergistic gains. For example, limited integration of mitigation strategies into broader modeling and scenario-building efforts limited their applicability. Opportunities for integrating mitigation strategies into foresight modeling and policy frameworks remain underexploited.

FINDING: The Climate Impact Platform played an Important role in linking CGIAR scientists to global climate platforms, but there was an even greater scope for broader engagement of scientists internally, across the CGIAR network.

- The Climate Impact Platform contributed to raising the profile of CGIAR, by various means, including the coordination of CGIAR submissions to the UNFCCC, the platform director's participation in working groups and reports of the IPCC, and coordinated inputs to the UK Foreign, Commonwealth & Development Office (FCDO) Breakthrough Report.
- This work has been helping to bridge the gap between the agriculture community and the climate community, and more can be done in this area.
- Participation of CGIAR scientists in global climate change processes was, however, relatively limited compared to the number of self-identified CGIAR climate scientists in CGIAR. The reasons for this need to be further explored but may be related to short funding cycles which hindered scientists' ability to make longer-term commitments.
- There would be clear value in more active involvement of CGIAR scientists in global processes related to climate change and food security.

3 Lessons Learned and Recommendations

3.1 Lessons Learned

Earlier involvement of the Platform may have resulted in more comprehensive integration of Climate Change Adaptation and Mitigation across the CGIAR Portfolio by providing subject matter expertise across the Portfolio; by generating a global perspective of planned work, opportunities for collaboration and gaps; and by being more active and impactful in global policy processes.

Tagging of results according to their relevance to climate was widely considered by CGIAR stakeholders to was beneficial. However, tagging was not comprehensively employed and the absence of differentiation between (at least) adaptation and mitigation limited its utility for research and analysis.

The two-year period covered by this evaluation was insufficient to look meaningfully at effectiveness, with some Initiatives barely out of their inception phase. Results generated by longer-running endeavors pointed to the importance of funding stability and job security.

3.2 Recommendations and Recommended Actions

The following formal recommendations from the SGEs are particularly relevant to the Climate Change Impact Area. Consult Synthesis of SGEs and individual SGE reports (portal with links to SG pages) and the Management Response (MR) Actions Tracker (link) for status update on their implementation.

3.2.1 Recommendations for the Science programs

Build on CGIAR s comparative advantages in Climate Resilience research: **mainstream climate adaptation and mitigation across the entire Portfolio** by continuing to provide evidence of the transformative impacts of national policies and strategies in building the resilience of food, land and water systems to climate change, using integrated systems frameworks. (ST, Rec. 7)

Strengthen the ability to forecast climate-related trends and impacts on food systems, using evidence-informed scenario approaches (ST, Rec. 7a).

- Establish robust platforms for real-time data sharing to improve policy guidance and program evaluations.
- Strengthen documentation of research impacts, particularly for smallholder farmers' adoption of improved technologies.

Integrate solutions to climate change across value- and stakeholder chains, using multi-scale systems approaches (ST, Rec. 7b).

- Scale proven agroecological innovations and develop frameworks to ensure their applicability across diverse contexts.
- Foster interdisciplinary collaboration and co-design processes with end-users to ensure innovation relevance.
- Strengthen participation and collaboration by engaging NARS and stakeholders in designing future research agendas, focusing on inclusive and bottom-up approaches.
- Align RIIs with multiple mega-programs to maximize their relevance and impact.

- Build adaptive capacity by training farmers and extension officers to adopt adaptive measures effectively, ensuring resilience in vulnerable communities.
- Engage private sector partners to scale greenhouse gas reduction innovations effectively.
- Build on the successes of national and regional policy influence—for example in East Africa—by aligning research outputs with global cross-sectoral climate policy frameworks and participating more actively in these processes.

3.2.2 Recommendations for Science Group

Develop incentives for interdisciplinary team collaborations across centers to tackle interconnected issues effectively under the integrated management framework. Continue using platforms and communities of practice to promote collaboration across all SPs and Accelerators, fostering a holistic approach to reducing food system vulnerabilities to climate change (ST, Rec. 3).

- Develop clear metrics to evaluate Initiative success in addressing environmental, social, and economic outcomes.
- Establish innovative systems to measure the QoS beyond conventional academic metrics, emphasizing novelty, rigor, and practical applicability.

Integrate genetic gains into broader contexts: Combine crop improvement with agronomy and plant health research, promoting crop and varietal diversity for food security and environmental health (GI, Rec. 5c). Expand research and dissemination of climate-resilient crop varieties and adaptive farming systems. Strengthen prediction models.

Annex 1. The Case Studies

Complete reports are available upon request from IAES.

3.1.1 System Transformation Science Group Case Study Report: Strengthening Resilience to Climate Change

The case study aimed to generate evidence, forward-looking learning, and recommendations on the theme Resilience to Climate Change, focusing mainly on a subset of Initiatives falling under the System Transformation (ST) Science Group (SG). The case study covered six Initiatives: #23: Climate Resilience (Climber); #24: Foresight; #28: Nexus Gains; #35: Fragility++; #26: Gender Equality and #25 Digital Innovation. It also considered the AICCRA project that has worked since 2021 to scale climate-smart agriculture and climate information services to reach millions of smallholder farmers in six countries in Africa. The case study included a field trip to Kenya.

These seven recommended actions aim to optimize CGIAR's Climate Resilience research, ensuring they remain relevant and impactful in addressing the resilience of food, land, and water systems in transformative ways. Selected actions were reflected in the formal recommendations subject to Management Response (MR) and implementation (MR Tracker):

A. **Enhance stakeholder feedback mechanisms**: establish processes to document and monitor stakeholder feedback on the impact of climate resilience policies and practices on long-term food security and livelihoods.
B. **Improve interdisciplinary collaboration:** incentives for interdisciplinary collaboration in climate resilience research will promote more holistic systems approaches to reducing the vulnerability of food systems to climate change. Boost collaborations across disciplines and centers to tackle interconnected issues effectively under a unified strategy.
C. **Develop commonly understood ToCs**, which clearly differentiate between the goals of Climate Change Adaptation, avoided maladaptation, mitigation, transformative responses, and long-term impacts vs. short-term outcomes in Climate Resilience research, with clearly stated indicators of success for each.
D. **Enhance data sharing and integration:** streamline data sharing to facilitate translation of Climate Resilience research into practice, using standardized, accessible data-sharing platforms that link climate data to food systems.
E. **Build local capacity for integrated systems research:** enhance in-country research capacity to apply integrated systems approaches to climate research at the interface of people, land, water and food systems, ensuring their sustainable governance.
F. **Promote transformative innovations in incremental steps:** assess the transformative potential of innovations in reducing vulnerability to climate change. Then, test their efficacy in collaboration with local communities to ensure technical soundness and social acceptance before scaling them for wider impact.

3.1.2 Resilient Agrifood Systems SG Case Study Report: Climate Change Mitigation/Adaptation across Different SG Initiatives

The case study focused on how Initiatives on Climate Change Adaptation and Mitigation operated in Colombia. It included a field trip that focused on three Initiatives (#12: Nature+, #14: AgriLAC Resiliente, and

#34: Livestock and Climate) out of the eight Resilient Agrifood Systems (RAFS) Initiatives that identified as contributing globally to work on climate change (#10, 11,12, 14, 18, 19, 20, 21, & 34). Several Initiatives had their antecedents in the CIAT-led CGIAR Research Program (CRP) on Climate Change, Agriculture and Food Security (CCAFS) which ran from 2017-22.

While the study identified several benefits from transition to the Initiative (e.g., increased collaboration amongst scientists across Initiatives and regions, and new partnerships—including with the private sector) the overwhelming message is one of frustration with the reduced and uncertain budgets. Seven actions were recommended, including formal recommendations subject to MR and action:

A. For the writing of the megaprograms, CGIAR should ensure scientists' input into the writing/proposing of the research agenda for the remaining six years from 2025.
B. NARS and other appropriate stakeholders should be given a chance to provide input into the writing of megaprograms.
C. Comms personnel should have megaprogram and CGIAR coordination so that the One CGIAR has one voice, or the appearance of such.
D. Funding should be announced for the following year based on soundness of those resources to ensure fewer budget cuts.
E. Ensure cross-cutting issues of gender and climate change cannot be dropped by future cuts and remain an integral part of the megaprograms.
F. Ensure each center reduces the cost of doing business with the CGIAR by reducing the high transaction costs, which many partners mentioned to the evaluation team.
G. RIIs should continue to be linked to other megaprograms and not confined to one megaprogram.

Annex 2. Key Evaluation Criteria and Questions Addressed by the SG Evaluations

Evaluation Terms of Reference

CGIAR evaluation criteria	Key evaluation questions
Relevance	1. To what extent does the Science Group (SG) Research Portfolio respond to the needs and priorities of its internal and external stakeholders? 2. How well have the SG strategies and objectives been articulated in terms of a theory of change (ToC), impact pathways and drawing on comparative advantage across the system?
Effectiveness	3. To what extent have the selected Initiatives/work packages (WPs) achieved and/or are expected to achieve, their objectives, including any differential results across subgroups of users/clients? 4. How well were the cross-cutting themes of gender and climate change integrated into ST Initiative design and implementation (tagging)? 5. To what extent does the SG draw on the capacities of the Impact Area Platforms and vice versa? 6. To what extent did the SG design enhance internal and external partnerships of CGIAR, and how aligned was it to the Partnership Framework?
Efficiency	7. How has CGIAR's Integration Framework Agreement (IFA) design and roll-out aided the SG to effectively stimulate the learning, monitoring, and adaptability of Initiatives? 8. To what extent is the governance and management of the SG deemed suitable for achieving objectives? 9. What are the internal and external factors influencing ST SG efficiency within a system of fully independent centers, and considering the constraints of limited resources?
Coherence	10. How coherent and compatible has the design and implementation of the SG Portfolio been with respect to the Partnership Framework (2022)? 11. How has the SG operationalized CGIAR's collective vision in the 2030 Research Strategy and CGIAR's IFA? 12. In what ways has the SG addressed key considerations and opportunities for enhancing coherence across, between, and within each SG?
Quality of Science	13. To what extent do the management processes of the SG ensure Quality of Science (QoS) (including credibility, legitimacy, relevance to next stage users, and potential effectiveness) of the research and operations? 14. In what ways are the research outputs by the SG of high quality and influential? 15. How do the research outputs contribute to advancing science?

Annex 3. SG Evaluation Feedback on Climate-Related Recommendations of the 2021 Synthesis of Learning

	Rec.	Management response	Action plan	Timeframe	Reported status	Assessment by Science Group Evaluation (SGE) teams
Recommendations for the Three Strategic Action Areas 0						
ST (10)	Rather than tackling climate change, NRM, and agriculture for nutrition and health separately, CGIAR should consider them together, holistically, exploring science-policy synergies and tradeoffs across the areas as food systems transform.	To work towards multiple objectives simultaneously is in line with the 2030 CGIAR Research and Innovation Strategy and is one of the key reasons for CGIAR reform. There are mechanisms in place at various levels to drive such an outcome.	This is being handled at Initiative level where each one will aim to contribute to multiple Impact Areas of CGIAR and to describe synergies and tradeoffs (e.g., in project benefit analyses). Furthermore, some Initiatives are designed specifically to consider synergies, such as National Policies and Strategies for Food, Land and Water Systems Transformation and Foresight Initiatives in ST and the Regionally Integrated Initiative (RIIs). At the same time, many Initiatives will give significant attention to specific Impact Areas to meet the information gaps identified by key stakeholders in those areas (e.g., nutrition, climate change). Where these high-level tradeoffs are identified, management will convene discussions across Initiatives. In the longer term, results on synergies and tradeoffs should	Ongoing throughout 2022-24 business plan period	In Progress	ST: Considerable progress was made at the planning and design phase to combine various initiatives synergistically. However, there were challenges in implementation and in realizing demonstrable results. So far, analytical approaches and products remain predominantly focused on the agriculture sector, and the question remains whether this will be adequate to address the cross-sector analysis and trade-off challenges posed by key initiatives in their proposals. Increasing research investments in fruits and vegetables, consumer demand, market innovations and food systems policy is a step in the right direction, but nutrition remains siloed and not mainstreamed or well-coordinated across CGIAR initiatives. The goal of diversifying food systems and diets for improved nutrition also requires adjustments in Genetic Innovation (GI) and Resilient Agrifood Systems (RAFS) SG initiative priorities, e.g., nutritional value as a clearer breeding priority, expansion of breeding efforts beyond staple commodities, and consideration given to nutrition in the selection of crop and livestock mixes being promoted for resilience.

	Rec.	Management response	Action plan	Timeframe	Reported status	Assessment by Science Group Evaluation (SGE) teams
			influence global discourses, including funder strategies.			
RAFS (14)	Reorient work to focus more on the vulnerable poor, in particular women and the disadvantaged and those at greatest risk from natural resource depletion, severe **climate change** impacts, economic deprivation, and conflicts.	The recommendation is addressed by the 2030 Research and Innovation Strategy and will be taken on board across the Initiatives under RAFS.	This focus is part of all selection processes with respect to countries and issues within countries. In the RIIs, this is a main aspect as they are strongly demand driven and focus on those at greatest risk.	Ongoing throughout 2022-24 business plan period	In Progress	RAFS: Initiatives have well-considered gender, and concrete efforts were made in this domain. However, the evaluation identified limitations in the delivery of research outputs and outcomes to the most vulnerable groups. Factors such as criteria for research participation, scaling strategies, prioritization of crops, and the selection of beneficiaries by farming communities, farmer organizations, and partner entities may have inadvertently excluded the most vulnerable individuals, thereby impacting the overall success. Additional constraints included budget cuts and a short three-year project cycle, which constrained resources and led to outreach to fewer smallholder farmers and other vulnerable groups than originally envisioned in the theory of change (ToC). Engagement with social scientists is still markedly less compared with the technical bio-physical scientific capacity internally available.
RAFS (15)	Improve assessment and metrics related to risk and **resilience** and co-develop social and technical innovations	RAFS SG agrees with the recommendation.	Within several Initiatives in RAFS and ST, scientists will work on assessing risks and co-design specific social and technological innovations to de-risk crop and livestock production with at risk populations. RIIs will especially	2022	In Progress	RAFS: Several Initiatives focused on strengthening the resilience of smallholder farmers, including with related research and assessments, and developed innovative socio-technical packages for climate-smart agriculture. However, no evidence was found of risk and resilience metrics in use for vulnerable populations or the co-design of these in the RIIs or Global Thematic Initiatives

	Rec.	Management response	Action plan	Timeframe	Reported status	Assessment by Science Group Evaluation (SGE) teams
	with at-risk populations.		have that as a strong aspect and reflect this in the ToC.			(GTIs) assessed. ToC's have not been adapted to include vulnerability risks in the current annual reports. Vulnerability and 'at risk' populations are not clearly defined.
RAFS (16)	Foster adoption of technical and social innovations at scale, as required to achieve system transformation, and give greater emphasis to research on scaling science and implementation science.	RAFS SG agrees with the recommendation.	Scaling readiness assessments of innovations and innovation packages will be embedded into all Initiatives. Each Initiative has identified specific scaling partners to be involved from the start. The RIIs will especially focus on this and have this at the core of the methodological approach. They will work with farmers at scale bringing systems innovations to work together with the key partners such as NARS. (https://www.tandfonline.com/doi/full/10.1080/14778238.2021.1884010)	Ongoing throughout 2022-24 business plan period	In Progress	RAFS: There are examples of good practice (e.g., low carbon rice farming) but also of innovations that do not have scaling readiness 'embedded' (e.g., charcoal production from food waste). Collaboration promised with NARS is variable, working well in countries where there is a lot of CGIAR activity and less comprehensively in others reviewed. The mutual engagement between RIIs and GTIs did not work as expected.
GI (22)	Integrate research with wider development and investment commitments related to Climate Change Adaptation and Mitigation.	Since varieties represent a major innovation to withstand climate change and increase climate resilience, the GI SG will integrate its work to provide smallholder farmers with effective adaptation and mitigation approaches.	Climate change projections and resilience potential will be included as key components for prioritization of breeding investments. Climate resilience through enhanced stress and diseases tolerance will be increased across the whole crop portfolio. GI will partner with RAFS, so the climate resilience impact of novel varieties is maximized at agrifood systems level.	Ongoing throughout 2022-24 business plan period	In Progress	GI: There is some evidence that climate change projections and resilience potential were included as key components for prioritization of breeding investments, particularly through product profiling and market segmentation. There is no evidence that formal mechanisms were developed and implemented to improve collaboration between GI SG and RAFS, however, there is evidence of several informal interactions between Initiative leaders of the two groups addressing this matter.

	Rec.	Management response	Action plan	Timeframe	Reported status	Assessment by Science Group Evaluation (SGE) teams
Recommendations for Seven Ways of Working						
Targeting Risk Management and Resilience (38)	Expand work on assessing risk and resilience and managing risk throughout the food system by strengthening CGIAR capacities or engaging external partners. Put a higher priority on improving resilience to climate and pest stresses when developing, adapting, and assessing technologies and innovations for crops and livestock.	The new strategy includes a stronger risk assessment and resilience improvement approach, and Initiatives prioritize their focus accordingly especially when looking at technologies and innovations in crop and animal systems.	Framing of Initiative designs around risk and resilience building, with clear intended results and indicators.	In the design phase (2021-22)	Completed	GI: No comments
Innovative Finance (39)	Collaborate with ARIs and the private sector on action research that	Executive management team and System Board agree on the importance of finance for fostering the types of transformations that CGIAR seeks to	Action research focusing on access among CGIAR target beneficiaries, especially low-income women, to finance (credit and insurance),	Ongoing throughout 2022-24 business plan period	In Progress	GI: No comments RAFS: Some good work on enterprises and women were assessed. Action research is on-going, but the balance between fundamental science and action research strong among RAFS partners who would

	Rec.	Management response	Action plan	Timeframe	Reported status	Assessment by Science Group Evaluation (SGE) teams
	unlocks access to finance, inputs, and innovation-based enterprise opportunities for women, youth, and other marginalized groups, building on index insurance, blended (public-private and public-private-producer) finance models, and other emerging approaches.	contribute to, and agrees with engagement with the private sector and ARIs in doing so. This will be critical in managing future climate risk, as well supporting the scaling of adaptation solutions. Within CGIAR we have recently developed some expertise and forged new partnerships with the financial community (e.g., through Climate Change, Agriculture and Food Security (CCA) and Harvest Plus) and have ongoing work on weather insurance and credit arrangements for producers with private sector partners. Clearly, we need to transform our own ambitions and partnerships with the private sector and international finance institutions as well to enhance knowledge and skills within CGIAR.	financial services and information.			prefer innovations/technology over academic research.

Annex 4. References

CGIAR Reports

CGIAR Independent Advisory and Evaluation Service (IAES). (2023). Terms of Reference: CGIAR Science Group Evaluations. Rome: IAES Evaluation Function. Retrieved from https://iaes.cgiar.org/evaluation

CGIAR Independent Advisory and Evaluation Service (IAES). Science Group Evaluations Portal. https://iaes.cgiar.org/evaluation/science-groups-evaluations

Science Group Evaluations Case Studies

CGIAR. (2021). Synthesis of Learning from a Decade of CGIAR Research Programs. https://www.cgiar.org/research/publication/2021-synthesis/

CGIAR Independent Advisory and Evaluation Service (IAES). (2024). CGIAR Science Group Evaluations: Brief on Quality of Science. Rome: IAES Evaluation Function. https://iaes.cgiar.org/evaluation/publications/cgiar-science-group-evaluations-brief-quality-science

CGIAR Independent Advisory and Evaluation Services. (2024a). Evaluation of CGIAR Science Groups: Results from Online Survey. https://iaes.cgiar.org/evaluation/publications/evaluation-cgiar-science-groups-results-online-survey

Fabricius, C. (2024). Systems Transformation Science Group Evaluation Case study: Strengthening Resilience to Climate Change. July 2024.

Meisner, C. (2024). Resilient Agrifood Systems Science Group Evaluation Case Study: Climate Change Mitigation/Adaptation across Different SG Initiatives and WPs. July 2024.

CGIAR. 2030 Research and Innovation Strategy. Transforming food, land and water systems in a climate crisis. https://cgspace.cgiar.org/server/api/core/bitstreams/6125b92c-01b6-480c-9d69-881cea4579b1/content

Online Resources

AICCRA Project: https://aiccra.cgiar.org/

CGIAR Initiatives Explorer: https://www.cgiar.org/research/cgiar-portfolio/initiatives-explorer/

Key Results Stories from the Initiative and Impact Platform Annual Reports: https://www.cgiar.org/news-events/impact-stories/initiative-results/?initiative-category=climate-adaptation-mitigation

Results and Initiatives Dashboards: CGIAR Results Dashboard - CGIAR & Initiatives Dashboard - CGIAR

The Climate Impact Area Platform: https://www.cgiar.org/research/cgiar-portfolio/climate-adaptation-mitigation/platform/

Cited Literature

Bezner Kerr, R. (2023). Maladaptation in Food Systems and Ways to Avoid It. *Current Opinion in Environmental Sustainability* 61 (April 1, 2023): 101269. https://doi.org/10.1016/j.cosust.2023.101269

Juri, S., Terry, N. & Pereira, L.M. (2024). Demystifying Food Systems Transformation: A Review of the State of the Field. *Ecology and Society* 29, no. 2 (2024). https://doi.org/10.5751/ES-14525-290205.

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