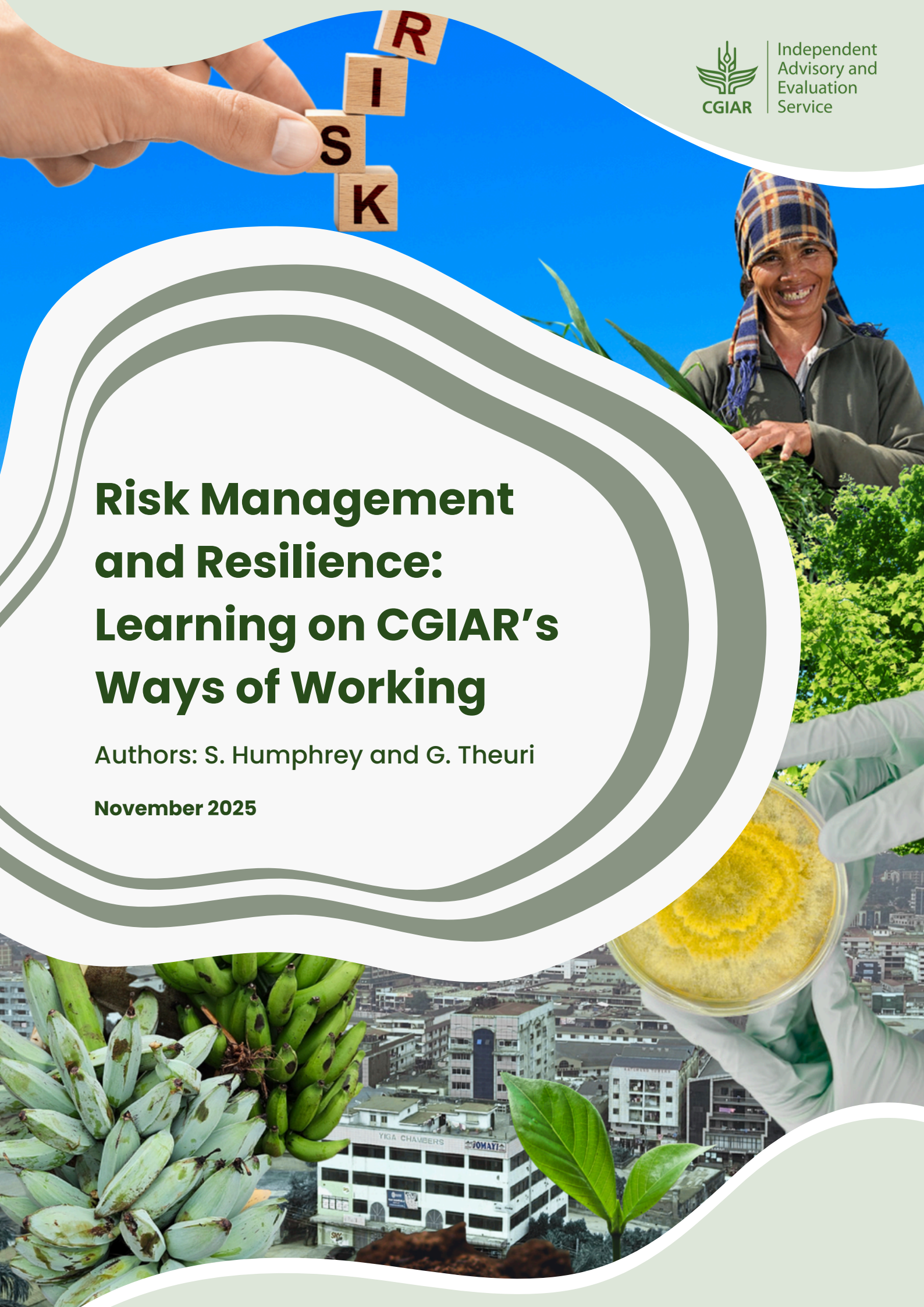

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Risk Management and Resilience: Learning on CGIAR's Ways of Working

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Risk Management and Resilience: Summary of Learning on CGIAR's Ways of Working

Sarah Humphrey, George Theuri

November 2025

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Table of Acronyms and Abbreviations

3ie	International Initiative for Impact Evaluation
CA	Climate Action
CapSha	Capacity Sharing
CGIAR	Consultative Group for International Agriculture Research
CIMMYT	International Maize and Wheat Improvement Center
CRPs	CGIAR Research Programs
FLW	food, land and water
GI	Genetic Innovation
IBLI	index-based livestock insurance
IAES	Independent Advisory Evaluation Service
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IMPACT	International Model for Policy Analysis of Agricultural Commodities and Trade
ISDC	Independent Science for Development Council
MELIA-F	Monitoring, Evaluation, Learning, Impact Assessment, and Foresight
MFL	Multifunctional Landscapes
OICR	outcome impact case report
PIM	Polices, Institutions and Markets
PRMS	Performance and Results Management System
RAFS	Resilient Agrifood Systems
RCC	risk contingent credit
RIIs	Regional Integrated Initiatives
SG	Science Group
SIMEC	Strategic Impact Monitoring and Evaluation Committee
SPIA	Standing Panel on Impact Assessment
ST	Systems Transformation
WoW	Way of Working

Abbreviations for the 2025-30 Research Programs and Accelerators are listed in Annex 7.

Overview

This evaluative summary reviews one of the seven Ways of Working (WoWs) described in CGIAR's 2030 Research and Innovation Strategy, to target risk-management and resilience as critical qualities for food, land, and water systems (FLW). The summary draws on reports by CGIAR's assurance bodies including IAES Evaluation Function (EF), Independent Science for Development Council (ISDC), Standing Panel on Impact Assessment (SPIA) and the Internal Audit Function. The summary considers future directions set out in the 2025–30 Portfolio inception reports to summarize progress, challenges, and opportunities related to the WoW. An important constraint to the work is the absence of a framework measuring progress towards delivery of the WoW.

CGIAR established a clear case for use of foresight and trade-off analysis to inform its strategy and interventions and build a knowledge based on megatrends and the future of food systems. Overall, this study found limited evidence of CGIAR foresight tools being used to inform planning and action.

CGIAR has a broad portfolio of tested solutions targeting production losses, particularly in the face of climate and health-related stressors and shocks. Resilience solutions are systems-oriented with strong engagement of beneficiaries. The question of robustness of solutions is shaped by CGIAR's research-for-development role, with uptake of solutions dependent on other actors. Specialized service providers play a critical role in testing, scaling and insuring sustainability of solutions-such as credit packages, risk advisories, and distribution or marketing of seed and vaccines.

CGIAR's 2025-30 Portfolio reflects a continued focus on core solutions related to health hazards and climate adaptation but with limited considerations of externalities and of trade-offs. Resilience emerges as a common concern, yet the concept, the nature of the contribution and related impact pathways are not fully unpacked. Futures thinking is clearly embedded in the Portfolio.

Amongst areas identified for further attention, there is a need to build a common understanding of systems approaches to risk and resilience, how CGIAR contributes and to develop appropriate metrics for monitoring its work. CGIAR could build closer linkages between foresight approaches and planning interventions with partners at different levels to ensure development of forward-looking and appropriate interventions.

1 Background and Introduction

This summary is one of a series of summaries of learning about CGIAR's seven ways of Working (WoWs) described in CGIAR's 2030 Research and Innovation Strategy. The Terms of Reference (ToR) provides further background on WoWs and presents the approach to compiling evaluative evidence and learning. WoWs summaries align with the System Council-endorsed Multi-Year Evaluation Plan (MYEP) in the consolidated 2025-27 Workplan for CGIAR's Independent Advisory and Evaluation Service (IAES) (SC/M21/DP5).

This report focuses on the fourth Way of Working (WoW) set out in CGIAR's 2030 strategy as follows:

- **Target risk-management and resilience as critical qualities for food, land, and water (FLW) systems:** A world where the climate crisis and emergence of new infectious diseases (such as COVID-19) demonstrate that rapid change, shocks, and tipping points are the new normal. From the outset, CGIAR will consider vulnerability to multiple risks to food systems (e.g., zoonoses, degraded ecosystems, climatic shocks, market swings, political upheaval, migration) and how this vulnerability can be turned into resilience by reducing exposure where possible, building human and societal capacity, and managing the sensitivity of forest, water, farming, and food systems to the onslaught of systems shocks. Research, capacity development, policy engagement, and partnerships will explore multiple possible future scenarios, map major pathways for change, and aim to create solutions that are robust across multiple contexts (CGIAR System Organization, 2021).

Key implementation elements for the **Risk-Management and Resilience WoW** are:

- Active use of foresight and trade-off tools.
- Generation of solutions that are demonstrably robust across multiple future scenarios and contexts.
- Greater collaboration with service-oriented partners, including lending and insurance sectors, on specific risk management tools.
- Building internal and external capacity in course corrections based on monitoring, evaluation, and learning.

Resilience is at the heart of CGIAR's 2030 Vision: "a world with sustainable and resilient food, land, and water systems that deliver diverse, healthy, safe, sufficient, and affordable diets, and ensure improved livelihoods and greater social equality, within planetary and regional environmental boundaries (CGIAR System Organization). Resilience was also emphasized in CGIAR's 2011 vision, "to reduce poverty and hunger, improve human health and nutrition, and enhance ecosystem resilience through high quality international agricultural research, partnership and leadership" (CGIAR, 2011).

The Synthesis of Learning from a Decade of CGIAR Research Programs (IAES, 2021) confirmed the important role of CGIAR's agri-food research in informing policy discussion and change in traditional and newer areas such as climate change, natural resource management, resilience, and health and nutrition. The profiling of risk management and resilience as a WoW reflects and builds on a significant body of earlier work related to risk management and resilience[1] by individual CGIAR research programs and centers. For example, ten of the 681 outcome impact case reports (OICRs) produced between 2015 and

[1] The terms 'risk management' and 'resilience' are not always employed or are used in different ways to the prevailing understanding of the terms.

2022 refer to risk management and 39 refer directly to resilience (CGIAR, n.d.-b). Standing Panel on Impact Assessments (SPIA) impact assessments evidence the continuing importance of earlier solutions.

This summary covers the period from 2022 when CGIAR developed and initiated a rollout of its 2022-24 Investment Strategy that outlines the body of research and innovation to deliver on the priorities set out in CGIAR's 2025-30 Strategy. With the focus from 2022, the report draws on earlier work where this work is continuing or has been reflected in later syntheses.

2 Objectives and Key Questions

This summary is part of a series of five summaries. The purpose of the summaries is to synthesize evaluative and other evidence and insights to assess challenges and identify opportunities to inform the implementation of CGIAR's 2030 Strategy, viewed through the lens of WoWs. Findings will also help CGIAR establish a baseline understanding of the status of WoWs and identify pathways to 2030. This will provide input for the midline independent evaluations of the CGIAR 2025-30 Portfolio in 2027 (SC/M21/DP5). Aligned with the CGIAR-wide Evaluation Framework and Policy, summaries are intended to provide evidence-based steering and learning to inform strategic decisions by the System Council, it's Strategic Impact Monitoring and Evaluation Committee (SIMEC), Integrated Partnership Board (IPB) and center boards, and CGIAR leadership more broadly regarding the implementation of WoWs. Summaries, together with knowledge-sharing activities such as dissemination efforts, briefs, and thematic webinars, will facilitate discussions on CGIAR's WoWs in the current context.

Risk Management and Resilience

This summary aims to answer the following questions:

1. How does CGIAR programming use foresight and trade-off tools to anticipate and manage risks across FLW systems?
2. What types of solutions has CGIAR developed that are robust across different future scenarios and contexts?
3. How is CGIAR working with service-oriented partners, such as the lending and insurance sectors, to develop and apply risk management tools?
4. In what ways is CGIAR strengthening internal and partner capacity for adapting to shocks through monitoring, evaluation, and learning?
5. How does CGIAR's approach turn system vulnerabilities into resilience across different types of risks?

3 Approach and Methodology

This summary is based on a structured desk review of internal and external evidence, including IAES-led evaluation and synthesis reports; reviews and assessments from the Independent Science for Development Council (ISDC) and the SPIA, the CGIAR Internal Audit Function, and selected CGIAR center-led evaluations and studies. It also draws on Program and Accelerator inception reports from the 2025–30 CGIAR Portfolio, and on selected external literature sources.

The report is further informed by focus group discussions (FDGs) with a broad cross-section of stakeholders during an IAES visit to Uganda (Annex 2). Using this body of evidence, the analysis assesses the extent to which the portfolio aligns with WoW objectives on risk management and resilience. The review

documents key findings, challenges, and opportunities related to the implementation of the WoW across the CGIAR system and identifies lessons to inform strategic decision-making.

This approach aims to reinforce connections between Monitoring, Evaluation, Learning, Impact Assessment, and Foresight (MELIA-F), in line with CGIAR's broader institutional efforts to improve coordination across CGIAR centers, programs and accelerators, and independent data and evidence providers. It also contributes to ongoing collaboration among CGIAR assurance providers to make better use of evidence and advice while minimizing assurance fatigue.[2]

3.1 Limitations

This summary faced several limitations. Firstly, absence of a formal WoWs framework limited the ability to systematically assess the approach and implementation process. Without clearly defined parameters or benchmarks, it was not possible to determine the extent to which the WoW was implemented as envisioned. Secondly, the desk review was heavily constrained by limited timing and length restrictions. Thirdly, some examples were taken from CGIAR sources including Initiative websites and the CGIAR Results Dashboard. While these were considered credible, no formal quality assessment was undertaken to verify their accuracy, completeness, or potential bias (IAES, 2025). Finally, available evidence related to the different questions was unbalanced with notable gaps in capacity strengthening. The report should be understood within the context of these methodological and data limitations.

4 Key Learnings

4.1. How does CGIAR programming use foresight and trade-off tools to anticipate and manage risks across FLW systems?

CGIAR's work on foresight tools and tradeoff analysis was considered in the WoW study on Systems Transformation[3] which describes work under the Foresight Initiative (See Howard & Theuri, 2025). The report implicitly establishes how systems perspectives such as nexus approaches are integral to understanding and addressing risk and resilience. This message is echoed in the wider literature related to disaster risk reduction (Climate Resilient Food Systems Alliance, 2024).

The case for using foresight analysis and trade-off analyses to inform CGIARs strategy and interventions is set out in a set of ISDC-commissioned Food and Agriculture Systems Foresight Studies (Lentz, 2020; Zurek et al., 2020), a follow on study on trade-offs (Antle & Valdivia, 2020), and a related technical note on foresight and trade-off Implications for One CGIAR (ISDC, 2020). In one practical application, Antle and Valdivia (2020) identified the International Crops Research Institute for the Semi-Arid Tropics (ICRSAT) AgMIP crop-livestock intensification project in Zimbabwe as an example of how foresight analysis and trade-off analyses can be used to inform stakeholders about climate change-related risk under different pathways. One key finding is that the existing foresight literature did not consider shocks such as the COVID-19 pandemic or, more generally, zoonosis (Barret et al, 2021).

The CGIAR Foresight Initiative (2022-24) contributed significantly to foresight or futures thinking through a set of notes that summarize current knowledge on various aspects of food systems including environmental sustainability and tradeoffs. International Food Policy Research Institute (IFPRI) of CGIAR

[2] Observed through internal discussions with CGIAR stakeholders.

[3] Specifically, how are foresight studies and trade-off analyses used in CGIAR projects (both at development and implementation phases) to support systems transformation?

published an extended collection of papers under the same title in 2025 (Wiebe & Gotor, eds, 2025), with a focus on emerging challenges to food systems. Many of the contributions touch on the effects of recent shocks, notably the COVID-19 pandemic and the war in Ukraine that affected global cereal and oilseed markets. Concluding chapters on impact models and foresight reflect the growing importance of models and scenarios in informing foresight thinking, with the IFPRI International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) presented as "a crucial tool for assessing the potential scale and severity of future food system challenges and opportunities to address them" (Wiebe & Gotor, eds, 2025).

ISDC continues to champion the use of foresight and trade-off analysis. A 2022 ISDC brief to the System Council (ISDC, 2022) on incubating Innovation considers risk from the perspective of there being winners and losers with adoption of any innovation, stating, "Inclusive innovation recognizes and addresses the trade-offs inherent in complex agri-food systems. Indeed, addressing such trade-offs is fundamental for establishing the legitimacy of innovations to which CGIAR contributes and essential to sophisticated risk management". A 2021 ISDC opinion piece indicated that foresight and trade-off analyses can and should permeate all research activities in a structured and systematic way. This view is reinforced in the report on Responding to Emerging Megatrends (ISDC, 2023) which indicates that megatrend, foresight, and trade-off analyses should form an integral and iterative part of design and delivery processes to facilitate responses for evolving challenges and opportunities.

CGIAR's 2025 Flagship Report (CGIAR, 2025) notes that as "policymakers face escalating risks from conflicts, climate change, and technological disruptions…CGIAR's foresight analysis aids smarter decisions by predicting trends and integrating research on food security, climate adaptation, and sustainable agriculture."

However, while reporting by the Foresight and NEXUS Gains Initiatives[4] reflects the broad scope and reach of CGIAR's work on foresight and trade-offs and attests to the appreciation of national partners,[5] this found few explicit examples of how CGIAR's foresight work influenced CGIAR or partner planning and implementation.[6] This is echoed in a finding of the Systems Transformation (ST) Science Group (SG) Evaluation that combines a thematic focus (such as climate) with enabling themes (such as foresight, data/digital) generated limited success in translating to substantial outcomes (IAES, 2024a).

This is not without consequences. The ST SG Evaluation case study, Strengthening Resilience to Climate Change,[7] found that insufficient attention was paid to trade-offs between addressing immediate, short term stakeholder needs with long-term impact in building resilience, and highlighted that a focus on potentially maladaptive interventions such as enhanced production of single crops, rather than crop diversification, may undermine achievement of climate resilience objectives. SG evaluations made specific recommendations on strategic deployment of foresight and trade-off analysis across different CGIAR operations. For instance, the IAES 2021 Synthesis called for: (1) the development and implementation of a system-wide strategy for equitable engagement and effective communication with partners; (2) ensuring that public, private, and civil society stakeholders are involved in foresight and priority setting processes and have a sense of ownership over the research agenda; (3) considering to tackle climate change,

[4] Both under the Under the Systems Transformation Science Group Evaluation.
[5] includes attestations from partners in Argentina, Brazil, China, India, Indonesia and South Africa.
[6] A 2024 innovation report entitled The International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT): Application of biophysical and socioeconomic modeling tools to explore strategic policy options relevant for developing countries refers to the IFPRI IMPACT model system that continued to be developed under the Foresight Initiative. See The IMPACT: Model documentation for version 3.6.
[7] Unpublished, June 2024.

Natural Resource Management, and agriculture for nutrition and health together, holistically, exploring science policy synergies and tradeoffs across the areas as food systems transform (IAES, 2021).

Foresight approaches were used implicitly in a range of strategic risk management tools developed by CGIAR including a systematic risk profiling tool that considers synergistic shocks and was applied to develop risk profiles in Kenya, Rwanda, and Malawi (Mukashov et al., 2024). The One Health Initiative[8] is identified as having the potential to deal with complex challenges at the nexus of health, agriculture and environment, towards generating solutions to existing and emerging health threats (IAES, 2024a) such as anti-microbial resistance. The CGIAR Results Dashboard references several examples of CGIAR planning tools related to resilience including climate decision trees, climate-smart maps and adaptation plans (CS-MAPS), and a Cooperative Climate Cleverness Check.

4.2. What types of solutions have CGIAR developed that are robust across different future scenarios and contexts? How does CGIAR's approach turn system vulnerabilities into resilience across different types of risks?

CGIAR's solutions to risk management largely target production risk or financial risk associated with production losses. These include development, testing, and support to roll-out solutions that reduce exposure to immediate threats including climate-related hazards such as drought, floods, or changes to seasons (such as new varieties, info-advisory services), and health-related threats such as pests and diseases (resistant varieties, vaccines) and financial risk-related threats such as insurance schemes to compensate farmers for production losses. Approaches to resilience-building include developing and promoting better practices at farm or landscape level to build resilience in agroecological systems and interventions at different points in the production and value chain. These approaches would often target more vulnerable groups such as women to build resilience to shocks or stressors at the smallholding or household level. Bundled solutions include combined use of digital climate advisories and risk contingent credit (RCC) (see Section 4.3). Other solutions work upstream to provide decision support tools (See Section 4.1) and information and knowledge platforms or broadcasts (See Section 4.4).

Risk management is inherent in establishment and continued support to CGIAR genebanks that fulfill a global mandate to conserve and distribute globally important germplasm (IAES, 2024c). The Germplasm Health Units (GHUs) associated with genebanks play a daily role in managing phytosanitary hazards associated with germplasm distribution and contribute to the development of screening techniques.

The CGIAR Results Dashboard attests to the volume and breadth of CGIAR's consideration of risk management and resilience during the 2023-24 biennium by the three CGIAR SGs,[9] with over 1600 results[10] (of just over 16,600 results in total) referring to 'resilience', including 117 examples of innovation development . At outcome[11] level, there are 51 examples of innovation use. A total of 99 results refer to risk management including ten examples of innovation development and six examples of innovation use.[12]

[8] Under the Resilience Agrifood Systems Science Group.

[9] SG Evaluations Portal.

[10] Over half of the 1,600 results referring to resilience (879) are associated with the ST SG, 406 with RIIs, 374 with RAFS and 127 with GI. The 99 dashboard results on 'risk management' were largely generated by the RIIs and, to a lesser extent, by Initiatives concerned with climate health and plant health.

[11] Defined as real-world behavior changes (CGIAR System Organization, 2024).

[12] Results were identified through the search function on the CGIAR PRMS Results Dashboard. It was beyond the scope of this review to verify whether results substantively address resilience and risk management in the sense of the WoW. Some innovation use outcomes refer to organizational processes.

Use outcomes related to risk management and resilience indicate that recent solutions are dominated by information platforms and advisories that were rolled out in at least 11 countries.[13] Innovations linked to resilience include a wide range of improved practices at farm level (e.g., conservation agriculture, mixed cropping) or landscape level (rangeland management). Climate-risk credit schemes are often associated with information systems and access to services for mechanized farming. While just one 'resilience' result was associated with breeding,[14] results classified on the dashboard under the Genetic Innovation (GI) SG[15] include examples of varietal development for stress tolerance (disease, climatic conditions) as well as the International Maize and Wheat Improvement Center (CIMMYT) report on the 2024 release of CGIAR varieties in 42 countries which indicate that 58% of the varieties are climate resilient.

While the breadth of work related to risk management and resilience may also indicate fragmentation or duplication of efforts, there are a myriad of examples where CGIAR produced notable successes and created synergies from such collaborations. For instance, at least seven CGIAR centers and seven Initiatives across the Resilient Agrifood Systems (RAFS) SG and ST SG[16] were involved in delivery of climate advisory services in 2022-224. The collaboration was initially implemented under two use cases: (1) credit access in Kenya where micro-level data was used develop and scale a climate vulnerability assessment to aid in the assessment of climate risk insurance to climate risk management; and (2) prioritization and targeting of agronomy related sustainable intensification options in Malawi where micro- and macro-level data was used to diagnose investment opportunities for agronomy-related technologies and scale up the results. Collaboration further helped to assess the impact and quantify trade-offs within farming systems. One of the notable products was the Agriculture Adaption Atlas, which is an interactive data and exploration tool that offers policy makers, researchers and investors insights into climate risk, impacts, vulnerabilities and adaptation strategies (CGIAR, n.d.-a).

The question of robustness of solutions touches on CGIAR's mission as a research-for-development organization, since establishing and determining robustness depend on solutions being tested at scale and outside an action-research or development project context. Durability and impact depend not only on appropriate and timely solutions, but on the engagement of numerous other actors and on a favorable enabling environment. The 2021 Synthesis of Learning found prevailing CGIAR metrics for measuring development, sustainability, and resilience to be insufficient, in part reflecting a lack of social science expertise.

The SPIA impact studies in Ethiopia, Uganda, and Zimbabwe (Alemu et al., 2024; Ileku et al., 2025; SPIA, 2019) provide evidence related to the real-world performance of solutions such as livestock and crop varieties that are resistant to or tolerant of health and climate related hazards, vaccines and modified farming practices. They reflect the extended timelines required for development and roll-out of solutions. The SPIA report on Ethiopia (Alemu et al., 2024) includes an empirical observation that "… despite three years in which the country suffered multiple compounded shocks…adoption rates for agricultural innovations have not fallen, and if anything, have increased. Prima facie, this speaks directly to the contributions that these agricultural innovations make in enhancing the resilience of Ethiopian's rural households."

[13] This figure includes similar results obtained filtering the Dashboard Results for adaptation.

[14] Development of achievable target product profiles (TPPs) through the accelerated breeding Initiative.

[15] GI SG Evaluation Report.

[16] CGIAR Initiatives (Sustainable Intensification of Mixed Farming Systems, Livestock Climate and System-Resilience, Building Systemic Resilience Against Climate Variability and Extremes, Excellence in Agronomy, Nature-Positive Solutions for Shifting Agrifood Systems to More Resilient and Sustainable Pathways, Sustainable Animal Productivity, and the East and Southern Africa regional Initiative Ukama Ustawi) came together to coordinate Farming Systems Analysis-related work.

The ISDC 2023 megatrends report notes that while "climate-smart innovations help build resilience in agri-food systems, as climate change continues, current adaptation options will become less feasible and effective."

> *And here we start thinking around all the sort of local constructs of resilience that we can unpack, as a research-for-development agency: traditional knowledge, community governance, early warning systems from the community perspective, as opposed to a humanitarian aid perspective."*
>
> *Anna Okello, Director Food Frontiers and Security Science at CGIAR*

4.3. How is CGIAR working with service-oriented partners, such as the lending and insurance sectors, to develop and apply risk management tools?

The action research and pilot projects associated with risk management and resilience were delivered in collaboration with a wide range of partners including National Agricultural Research and Extension Services (NARES), NGOs, and service providers. This observation is reinforced by recommendation 2 of the RAFS SG Evaluation and underscored as a priority by the Partnerships WoW report (IAES, 2024b; Coccia et al., 2025). The recommendation calls for CGIAR to better anchor its work in national research and development agendas and meaningfully engage NARES in design and implementation of the 2025-30 Portfolio. Maintenance of these services is an important sustainability factor while scaling solutions ultimately depends on financial viability. The following paragraphs look at the engagement of service-oriented partners in agricultural risk and briefly note the role of service providers whose engagement is critical for scaling solutions, including advisories mechanisms, seed systems, and veterinary services.

Insurance

The Synthesis of Learning (IAES, 2021) recommended collaboration with Agricultural Research Institute (ARI) and the private sector to explore new financing avenues for expanding research on risk management and to unlock access to finance, build index insurance and innovation-based opportunities for women, youth and other marginalized groups. Management responses to the synthesis noted that the recommendation would be critical in managing future climate risk, as well as supporting the scaling of adaptation solutions. The recommendation was reported as ongoing throughout the 2022-24 Portfolio but has since been put on hold.[17]

CGIAR has an extended track record of research in agricultural insurance for reducing farmer risk including notably: (1) IFPRI research since 2009 on factors constraining farmers' demand for agricultural insurance and on gender inclusiveness; (2) IFPRI research since 2015 on developing new forms of insurance; and (3) International Livestock Research Institute (ILRI) action-oriented research on index-based livestock insurance (IBLI) product (Kramer et al., 2021; Ceballos et al., 2025).

Ceballos et al. (2025) found that pilot programs were largely initiated and developed by researchers, donors, governments, or NGOs, and only rarely by the private sector. Authors highlighted that private sector commitment is not yet at the level required to develop private sector insurance markets. The CGIAR

[17] CGIAR Evaluation & Management Response Actions Tracker.

Dashboard includes 157 results related to insurance including 16 cases of innovation use. Partners in these results include ten national financial institutions and five international financial institutions.

IFPRI recently completed a set of evaluative case studies on insurance related topics on behalf of the International Initiative for Impact Evaluation (3ie) that reflected their longer running interventions in the pilot areas (Box 1). Studies reflect a central role of service-oriented partners in pilot Initiatives in Kenya and India but provide limited information on potential for scaling up or replication. A recent study on impact of RCC and traditional credit (Ndegwa et al., 2024) drew attention to limited access to Kenyan smallholders to government extension services which are crucial to scaling of solutions.

Box 1. Examples of private sector engagement in pilot insurance-based risk management in CGIAR

India:

- A picture-based agricultural insurance (PBI) product was sold and underwritten by the Housing Development Financial Corporation ERGO General Insurance Company (HDFC), a leading private sector provider of crop insurance in India. An established local research institute, the Borlaug Institute for South Asia (BISA), that was originally set up by CIMMYT, was a critical intermediary in view of its established trust with farmers. The study pointed to limited value in scaling up the approach in the local context but noted potential for incorporating PBI in existing products. Weak digital infrastructure was noted as a limitation (Ceballos et al., 2024).
- Led by a social enterprise, the Dvara E-Registry, combined digital technologies such as remote sensing data with ground data and machine learning to generate farm-specific credit scores to improve access to farm credit and insurance. While assessing impact was confounded by limited payouts during a period of clement weather, the approach showed promise in broadening access to insurance products, including in the absence of land titles (Kramer et al., 2025).

Kenya:

- The insurance embedded credit scheme RCC for promoting resilience and livelihoods developed with Equity Bank Kenya Ltd, Kenya Commercial Bank, APA Insurance and SwissRe (reinsurance) included insurance in a broader financial product, with insurance pay outs serving to offset loan payments. Uptake proved higher than traditional credit and has positive effects on agricultural investment such as spending on fertilizers (Shee et al, 2025).

A complementary study by ILRI (Jensen et al., 2025) investigated an established IBLI scheme promoted by a wide range of actors in Kenya and Ethiopia. While earlier study results indicated that insurance coverage yielded benefits through higher risk, and higher return production strategies, authors concluded that promoters of IBLI should be cautious about introducing IBLI to new areas given the limited evidence of impact.

Advisory Services

Climate advisory services depend on continued support as well as suitable digital infrastructure for reliable and cost-effective services, a factor that has proven limiting in some areas. Two of the 2024 innovations related to climate advisories refer explicitly to leading roles played by the private sector. This review did not find any references related to the financial sustainability of advisory services.

Seed Systems

While service providers play a critical role in seed distribution, the WoW summary found only limited information on how this role may differ when promoting and distributing varieties designed for resilience or tolerance to stressors. One good example of targeted efforts in this area is the IRRI-led Direct Seeded Rice Consortium, a public-private partnership designed to promote a technique designed for water stressed environment. One study notes that resilient varieties do not perform as well compared to usual varieties in the absence of a given stressor. This points to a potential role for informed seed suppliers to influence purchasing choices.

Vaccines

Provision of vaccines is an established service that often involves both public and private sector service providers. The SPIA Uganda study described how the East Coast Fever–Infection and Treatment Method (ECF-ITM) vaccine is produced for use in Uganda by the Malawi Centre for Ticks & Tick-Borne Diseases (Ilukor et al., 2025). This was established following a process of technology transfer from ILRI in partnership with a registered charity in the UK.

4.4. In what ways is CGIAR strengthening internal and partner capacity for adapting to shocks through monitoring, evaluation, and learning?

The focus of this summary was on a set of pre-selected reports developed by CGIAR's assurance providers. The CGIAR Internal Audit Function played a complementary role in consideration of different dimensions of organizational risk, but this report has a different focus to risk management as characterized in the WoW (Box 2 and Annex 4). The Innovative Finance WoW study reflects the increasingly difficult funding environment for work on food systems and identifies opportunities for CGIAR to explore in the implementation of the 2025-30 Portfolio.

Box 2. Consideration of risk management by the CGIAR Internal Audit Function

CGIAR has a well-structured and comprehensive approach to tracking risk management at organization level, spanning identification, reporting and monitoring of strategic, operational and financial risk (Annex 5). The risk management framework was applied in the Science Program and Accelerator proposals and inception reports. External stressors and shocks are considered insofar as they affect CGIAR's operations and delivery, and mitigation actions may simply be avoidance of affected areas.

CGIAR evaluations and reporting refer to a range of approaches to internal capacity building including communities of practice (CoPs) such as those developed around the 2022-24 ClimBeR Initiative, Foresight Initiative, and CGIAR Climate Platform, and Pause and Reflect workshops at Initiative level. Regarding constraints, RAFS SG Evaluation noted that the Performance and Results Management Framework (PRMF) Dashboard tends to be updated only annually, limiting prospects for monitoring and sharing of information (IAES, 2024b).

The 2021 Synthesis of Learning recommended the development and implementation of a system-wide strategy for equitable engagement and effective communication with partners and stakeholders of all categories in the foresight, planning, delivery and follow-through of CGIAR research, with metrics derived from partner perspectives. The management response fully supported the recommendation, and

developed an action plan set to be completed in December 2022, however this is currently on hold.[18] In March 2024, the System Board (reframed now as the Integrated Partnership Board) endorsed the revised CGIAR Engagement Framework for Partnerships & Advocacy that framed risk as an integral consideration in the engagement strategy. In particular, 'calculated risk' was set out as one of the seven engagement principles where CGIAR will be willing to enter into partnerships and advocacy positions based on evidence-driven forecast and opportunities. That would include assuming reputational, financial, and operational risks either directly or by association with partners. It also guided that a risk benefit analysis would be used to guide partnership decisions. The partnerships study reiterating recommendation 4 of the ST SG Evaluation categorized it as a priority recommendation that called for the inclusion of partners in the portfolio design, implementation, and scaling as per the 2024 Partnership & Advocacy Framework (IAES, 2025; Coccia et al., 2025).

The CGIAR Results Dashboard serves as a portal that is accessible to both internal and external audiences to over 16,000 results generated through the 2022-24 SGs with thirty-three Initiatives. The largest share of CGIAR outputs related to risk management, resilience, adaptation and foresight are:

- Knowledge products including peer-reviewed articles, books and book chapters, guides, and a wide range of informal documents with 963 of the 1,600 results referring to resilience.
- Capacity Sharing for Development (CapSha) products including activity reports of training activities, webinars and workshops, with 173 results (CGIAR Results Dashboard, September 2025).

Available data on capacity sharing compiled at organizational level typically refers to inputs or reach (e.g., number of trainees). In addition to direct training, CGIAR reporting considered in this summary point to a range of channels for promoting external learning, including:

- Online services such as CGIAR's AWARE Platform and Climate Security Observatory are designed to reach interested and informed audiences and may be referenced by relevant third-party facilities such as the Anticipation Hub.
- Participation in multi-agency partnerships (such as the Climate Resilient Food Systems Alliance convened under the United Nations Framework Convention on Climate Change (UNFCCC) as well as task-oriented groups, such as the authors group for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Nexus Report, and are able to bring their expanded knowledge of the domain back to their own work.
- Co-design and delivery of action research and development projects (learning by doing).
- Contribution to targeted television and radio broadcasts such as Shamba Shape Up and Munda Make-Over, reaching over ten million farmers in Kenya and Zambia.
- Topic-based websites set up by the 2017–21 global integrating CRPs and 2022-24 Initiatives and CGIAR assurance providers.

5 Key Messages from the Summary

The number of dashboard results referencing resilience testifies to the widespread consideration of this topic across all three of the 2022-24 SGs. While CGIAR's partnership-wide framework on risk management is largely internally oriented, understanding and managing risks to food systems is central to work on resilience.

[18] CGIAR Evaluation & Management Response Actions Tracker..

Evidence indicates that CGIAR developed new solutions and continues to support rolling out and further development of tested solutions to known risk factors (hazards and stressors). CGIAR increased its understanding of shocks as well as barriers to uptake of solutions. Collaboration in design and delivery of Science Programs and Initiatives helped to build cohesion and community amongst CGIAR scientists across centers, geographies and disciplines. This summary found that information on CGIAR's work on resilience remains somewhat fragmented in the absence of a framework to track delivery on this WoW.

This summary report points to the following areas for further consideration:

- The need for an organization-wide understanding of systems approaches to risk and resilience and of related terminology to reinforce CGIAR's partnership-wide reputation as an authority on food systems resilience.[19]
- The need to develop metrics for monitoring CGIAR's contributions to resilience that reflect its role and contribution as a research-for-development organization.
- The need to reinforce linkages between foresight studies and planning for interventions/innovations including through engagement with country partners, potential scaling partners and service providers.
- The importance of collecting more systematic data and curating information on how individual and compounded hazards, stressors, shocks and barriers are experienced during interventions at different scales of any adaptation and mitigation measures employed.
- The value in working with partners such as 3ie to conduct extended and in-depth evaluative case studies that bridge the gap between SPIA's rigorous impact assessments and IAES centralized Evaluation Function.
- The continued importance of dialogue with a wide range of partners in designing research towards development of timely and appropriate interventions, noting that new Programs and Accelerator proposals include well-developed analyses of CGIAR's niche and comparative advantage.[20]
- The potential to build a CoP around resilience-building as well as families of solutions and encourage peer input during development of research projects to capitalize on partnership-wide experience and reduce risks of duplication.

6 Evidence Gaps & Looking Forward to the 2025-30 Portfolio

The formulation and understanding of evidence gaps are curtailed by the scope of this study that was primarily based on reports from CGIAR's internal evaluation and assurance providers (IAES, SPIA, ISDC and IA). The review did not find that the roles of the assurance functions overlapped, were duplicative or redundant. However, they provide a limited perspective on how CGIAR is addressing risk management and

[19] For example, in the context of the UN Food Systems Summit Action Track 5: Build Resilience to Vulnerabilities, Shocks and Stress.
[20] ISDC Comparative Advantage guidance

resilience in the WoW. It was beyond the scope of this study to consider the volume of evidence related to the 1,600 dashboard results regarding resilience, or to consult directly with key informants.

The focus for this summary is a set of questions that are implicit in the definition and implementation elements of the WoW. The summary has raised two further strategic questions: (1) To what extent is strategy and planning informed by foresight and scenarios? (2) To what extent is CGIAR addressing resilience from a systems perspective?[21] Addressing these questions comprehensively would require a wider review of deliverables and results. Looking ahead, the 2025-30 Portfolio inception reports of Science Programs and Accelerators include many examples of joint approaches towards risk management and resilience.

The CGIAR Portfolio Narrative 2025–30 states that over the next six years, in line with the 2030 Strategy's WoWs, and to raise CGIAR's ambition and become even more relevant in addressing critical global challenges and megatrends, will (amongst other areas) put greater emphasis on risk management and resilience.

Risk is referenced in general terms throughout the portfolio narrative and the Program and Accelerator inception reports with specific approaches to tackle risks associated with climate, disease and food safety clearly articulated by the programs on Climate Action (CA), Sustainable Farming (SF), and Sustainable Animal and Aquatic Foods (SAAF). The scaling for impact program (S4I) reflects broad consideration of risk factors. There is limited explicit reference to externalities and trade-offs, with only the Multifunctional Landscapes (MFL) program referring directly to use of trade-off analysis. Many of the programs refer in general terms to environmental sustainability and the Policy Innovation (PI), Food Frontiers and Security (FFS), MFL and CA programs refer to nexus approaches. The recently concluded ISDC review of the Programs and Accelerators noted that while risk is firmly embedded in the portfolio, the depth of coverage across the portfolio varies. ISDC recommends a more consistent, detailed risk analysis and mitigation planning amidst funding uncertainties and a dynamic policy landscape (ISDC, 2025).

Resilience is integrated throughout the program narrative and inception reports, but often in the form of generalized outcome statements. The term is not always sufficiently unpacked to understand how the programs will contribute. Programs with comprehensive approaches include MFL and CA.

Regarding foresight, which can inform anticipatory action to address stressors and shocks, the preamble to the 2025-30 Portfolio was informed by the IFPRI IMPACT model and ISDC megatrends report. However, while the work of the Foresight Initiative will be continued under the PI program, there is only limited reference to foresight in the extended narrative and inception reports. Futures thinking is evident the CA, FFS, and breeding for tomorrow (B4T) programs.

[21] Two points raised in the Inception Report for the Food Frontiers and Security science program (FFS, 2025) speak to weaknesses in this regard: (1) research on food systems often veers between overly global generalizations and narrowly local studies; and (2) achieving resilience…demands a systemic, co-created, and adaptive approach, not isolated interventions.

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Annex 1. Desk Review and Observations

The intended source material for this summary spans internal and external evidence, including IAES-led evaluations and synthesis reports, reviews and assessments from the Independent Science for Development Council (ISDC), the Standing Panel on Impact Assessment (SPIA), the CGIAR Internal Audit Function, and selected CGIAR center-led evaluations and studies.

Box 3. Overview of ISDC, SPIA and IAES literature used in this summary

ISDC

The ISDC made substantial contributions to thinking and knowledge in the areas of foresight and trade-offs as detailed in Section 4.1 and championed utilization of these approaches across CGIAR. ISDC plays a critical role in shaping the CGIAR Portfolio through its reviews of research proposals, inception reports and related narratives.

SPIA

The SPIA country studies made available for this review looked at adoption and scaling of past CGIAR innovations including management practices and improved varieties. The studies in Ethiopia, Uganda and Zimbabwe provide a wealth of insights on factors influencing uptake of past innovations intended to contribute to resilience but cautioned that they were not designed to look at causality in these areas. SPIA summary briefs such as the November 2024 Brief on Climate and Adaptation useful bring together examples of work from across CGIAR.

IAES Evaluation Function

The IAES Evaluation Function is concerned with both accountability and learning. Evaluation recommendations are widely shared and are systematically tracked as illustrated in Annex 6 for recommendations related to resilience. The high-level nature of the latest round of Science Program evaluations and limited focus on outcomes means these are more concerned with organizational matters and process than substance. Evaluation case studies-notably the Systems Transformation (ST) case study on Strengthening Resilience to Climate Change-support evaluation findings with substantive evidence but are not generally designed for wider circulation. The 2021 Synthesis of Learning from a Decade of CGIAR Research Programs (CRPs) compiles findings from two phases of CRP implementation (2011–16 and 2017–19[22]), many of which are still current.

CGIAR documentation was pre-selected to address the full set of questions posed by the different Ways of Working (WoWs) studies. In this sense, the review also addressed the question to what extent the evaluative reports, synthesis and impact studies produced to date can inform substantive questions related to consideration of risk management and resilience in the CGIAR Portfolio. External literature sources were used to a limited extent.

Results on the CGIAR Dashboard were identified using keywords (notably 'resilience' and 'risk management') and Performance and Results Management System (PRMS) filters (such as 'innovation use'). Results referred to in counts in this report are not formally tagged, and it was beyond the scope of this study to verify whether use of a given term represents a substantive contribution to knowledge in these areas. Reported deliverables were considered for all examples referred to in this report.

Inception reports for the 2025–30 CGIAR Research and Innovation Portfolio were analyzed using MaxQDA, and keywords were also used to filter results on the CGIARs Results Dashboard. The use of keyword

[22] The eight agri-food system CRPs and four global integrating CRPs ran from 2017-21.[23] Two programs (MFL and Food Frontiers and Security) refer to external shocks or events (natural disasters, climate related events, geopolitical dynamics and disease) that may affect food systems as well as operations and/or funding.

searches to scan available literature depends on the appropriate selection of search terms and the depth of review was limited by inconsistent use of terminology related to risk management and resilience.

Overview of Literature by Topic

Foresight and Tradeoffs (Section 4.1)

CGIAR system-level literature on foresight and tradeoffs includes a set of ISDC-commissioned Food and Agriculture Systems Foresight Studies (Lentz, 2020; Zurek et al., 2020, Antle & Valdivia, 2020). A related Technical Note on Foresight and Trade-off Implications for One CGIAR (ISDC, 2020) considers the first two of these commissioned reports and draws on additional work by ISDC focal points. A set of journal articles intended to reach a more general audience was published in 2021. The ISDC Foresight and Trade Offs work is introduced on a dedicated webpage including links to all papers and to a related webinar.

A later ISDC report on Responding to Emerging Megatrends (ISDC, 2023) explores how nine interlinked megatrends will affect achievement of CGIAR's collective global targets.

At program level, the CGIAR Foresight Initiative (2022-24) published a set of notes on that summarize current knowledge on various aspects of food systems. The International Food Policy Research Institute (IFPRI) published an extended collection of papers in 2025, with a focus on emerging challenges to food systems (Wiebe & Gotor, eds, 2025).

Other relevant literature made available for this report includes an IFPRI Discussion paper on Systematic Risk Profiling (IFPRI, 2024).

Consideration of foresight and trade-offs in CGIAR's evaluations is largely limited to the 2024 Systems Transformation (ST) Science Group (SG) Evaluation (notably the unpublished case study on Strengthening Resilience to Climate Change). The anticipated role of foresight in the Asian Mega Deltas regional integrated initiative (RII) is apparent in the 2024 synthesis of evaluability assessments.

A rapid review of 2022-24 results related to 'foresight' and trade-offs' on the CGIAR Dashboard indicates that contributions to knowledge, and to a lesser extent innovation, were made across a broad section of thematic Initiatives. The Foresight Initiative dominates search results on 'foresight' while the NEXUS Gains Initiative dominates search results on 'trade-off'.

Types of Solutions (Section 4.2)

It was beyond the time and resource constraints of this study to undertake a comprehensive analysis of CGIAR solutions related to risk management and resilience.

Results on the CGIAR Dashboard were filtered using search terms (such as resilience) and for this section of the report, by type (specifically, innovation use). Examples from CGIAR annual reports/2023 Portfolio Report were also considered. The terms 'resilience' and 'risk management' are indicative of the nature and breadth, and they do not include all relevant innovations. Additional climate advisory results appeared with the search term adaptation, while breeding innovation SG results include relevant work on crop varieties.

Evaluation reports and synthesis provided for this study include IAES SG evaluation reports and a set of recent SPIA impact studies for Ethiopia, Uganda, Zimbabwe, which reference resilience or stress in their titles. The 2024 SPIA Briefing Note: Climate Change Mitigation and Adaptation summarizes a cross section of innovations. There is only limited consideration of outcomes in the Resilient Agrifood Systems (RAFS) and ST SG evaluation reports.

Insurance (Section 4.3)

CGIAR's experience in agricultural insurance for reducing farmer risk was extensively reviewed with key sources including a 2021 synthesis brief by the IFPRI-led research program on Polices, Institutions and Markets (PIM) (Kramer et al., 2021) that built on an external review (Hazell and Timu, 2021) and a recent book chapter published in IFPRI's 2025 Global Food Policy Report 2025 (Ceballos et al, 2025). IFPRI's Foresight and Policy Modelling Unit published a comprehensive report on risk contingent credit (RCC) in 2024.

Four series of International Initiative for Impact Evaluation (3ie) evaluative case studies (2024-25) were contracted to IFPRI or ILRI, reflecting their longer running interventions in the pilot areas, with supplementary support provided, variously, by the CRPs on PIM, Livestock, Climate Change, Agriculture and Food Security (CCAFS) and the CGIAR Platform on Big Data in Agriculture.

Related solutions, including bundled solutions, were also addressed in OICRs and in CGIAR's annual reports. The CGIAR Dashboard includes 157 results related to insurance including 16 cases of innovation use. Partners in these results include ten national financial institutions and five international financial institutions.

Individual projects include International Center for Tropical Agriculture (CIAT) Innovation for Africa Climate Risk Insurance (ACRI), which produced a Manual on Crop Insurance as a Risk Management Tool and provides a useful categorization of agricultural risk (Annex 5).

There is no reference to insurance-based solutions in the 2024 SG Evaluations nor the related case studies on Strengthening Resilience to Climate Change and on Climate Change Mitigation/Adaptation.

Risk Management in CGIAR (Section 4.4 and Annex 4)

The development of CGIAR's risk management function by CGIAR's Internal Audit Function is well documented and reflects that system-wide approaches were developed from 2017 or earlier. An advisory engagement undertaken by the Internal Audit Function from 2022 generated a suite of reports in the lead up to submission of a status report to the CGIAR Steering Committee at its 22nd meeting in May 2025.

At program level, the CGIAR 2023 Annual Report describes the establishment of a risk identification and tracking process for 2022-24 initiatives. The May 2025 Update to the System Council on the Inception Phase for CGIAR's 2025—30 Science and Innovation Portfolio includes an update an analysis on consideration of risk management. Various online resources and guides are available. Each inception report for the 2025-30 Science Programs and Accelerators include a dedicated section on risk management, with most employing a template that uses risk categories identified under the advisory engagement.

Annex 2. Evidence from Uganda

Discussions with 43 participants drawn from CGIAR staff, private sector, development bank, farmers and development organizations evidence found ongoing efforts to enhance resilience of smallholder farmers against climate shocks, disease outbreaks and market vulnerabilities.

International Food Policy Research Institute (IFPRI), for instance, through Harvest+ and Harvest+ Solutions (which are the scaling dedicated programs of the organization) established collaborations with NGOs that work with refugees to ensure food security and build capacity of extension services. To enhance reach and expand impact, they partnered with International Potato Center (CIP), Alliance for Bioversity and International Center for Tropical Agriculture (CIAT) to work on a project for biofortification and entrenched it into government action plans and refugee integration programs using biofortification crops. International Institute of Tropical Agriculture (IITA) also reported carrying out a similar project on refugee integration in the host country. Since Uganda allows refugees to find meaningful employment, IITA provides support with integration into host communities using an agricultural lens in their interventions. This project is carried out with the partnership from the office of the Prime Minister.

Furthermore, to address the gender disparities in access to agricultural inputs, such as fertilizer which was placed very low at 0.2% for female farmers compared to 6% for male farmers, targeted strategies were put in place to improve women's access to input, which helps to enhance resilience at household level. The adoption of studies carried out by CGIAR centers, such as disease resilient crop varieties and solar-powered irrigation studies, supported resilience to climate shocks for smallholder farmers. However, this programming is at a micro-level.

Disease outbreaks were cited as a challenge to achieving food security in Uganda. CGIAR centers are working on this front to ensure that farmers gain resilience and can manage the risks occasioned by disease outbreaks. International Livestock Research Institute (ILRI) works on developing vaccines for the African swine fever, tick borne diseases, Rift Valley Fever as well as foot and mouth disease is seen as proactive in managing zoonotic threats. It was also noted that the government, through the National Livestock Resources Research Institute (NaLIRRI), works in close collaboration with ILRI to spearhead the discovery of vaccines to these threats. This reinforces the role of scientific research in supporting the national resilience agenda.

There were external risks posed from the policy context, for example the shifting presidential policies on rice. It was noted that there is a presidential directive that prohibits the rice farming in the wetlands. To mitigate this risk, CGIAR centers such as AfricaRice and their international development organization Japan International Cooperation Agency (JICA) are developing rice variety for highlands to ensure that such directives do not negatively impact food security. The regulatory framework further fails to cushion local producers of rice from structural market challenges and the proliferation of cheaper rice imported into the country.

It was also noted with concern that the discontinuation of Initiatives such as MELCOPs led to setbacks in the ability of actors in the agri-food system landscape to adjust based on real-time evidence, which is essential to building resilient food systems. This was a CGIAR Initiative led by centers where experts in Monitoring, Evaluation and Learning could share information, data and learnings on what is happening in different regions.

Annex 3. Definitions and Terminology

CGIAR

The glossary for risk in CGIAR functions as a foundational reference tool for stakeholders to align on shared terminology

Risk

Effect of uncertainty on objectives. An effect is a deviation from the expected. It can be positive, negative or both, and can address, create or result in opportunities and threats. Objectives can have different aspects and categories and can be applied at different levels. Risk is usually expressed in terms of risk sources, potential events, their consequences, and their likelihood.

Risk Management

Coordinated activities to direct and control an organization regarding risk. Risk includes culture, capabilities, and practices, integrated with strategy-setting and performance, that organizations rely on to manage risk in creating, preserving, and realizing value.

Intergovernmental Panel on Climate Change (IPCC) (2022)

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 (IPCC citing Arctic Council, 2022).

Risk

The potential for adverse consequences for human or ecological systems, recognizing the diversity of values and objectives associated with such systems. In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change. Relevant adverse consequences include those on lives, livelihoods, health and well-being, economic, social and cultural assets and investments, infrastructure, services (including ecosystem services), ecosystems and species.

In the context of climate change impacts, risks result from dynamic interactions between climate-related hazards with the exposure and vulnerability of the affected human or ecological system to the hazards. Hazards, exposure and vulnerability may each be subject to uncertainty in terms of magnitude and likelihood of occurrence, and each may change over time and space due to socio-economic changes and human decision-making.

In the context of climate change responses, risks result from the potential for such responses not achieving the intended objective(s), or from potential trade-offs with, or negative side-effects on, other societal objectives, such as the Sustainable Development Goals (SDGs). Risks can arise, for example, from uncertainty in the implementation, effectiveness or outcomes of climate policy, climate-related investments, technology development or adoption, and system transitions.

Risk Management

Plans, actions, strategies or policies to reduce the likelihood and/or magnitude of adverse potential consequences, based on assessed or perceived risks.

Trade-off

A competition between different objectives within a decision situation, where pursuing one objective will diminish achievement of other objective(s). A trade-off exists when a policy or measure aimed at one objective (e.g., reducing greenhouse gas emissions) reduces outcomes for other objectives (e.g.,

biodiversity conservation, energy security) due to adverse side effects, thereby potentially reducing the net benefit to society or the environment.

Scenario

A plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces, e.g., rate of technological change (TC), prices, and relationships. Note that scenarios are neither predictions nor forecasts but are used to provide a view of the implications of developments and actions.

Vulnerability

The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

United Nations Office for Disaster Risk Reduction (UNDRR) (2017)

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from, the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Vulnerability

The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

UNDRR, World Food Program, Food and Agriculture Organization of the United Nations (FAO), CGIAR & World Bank (2024)

Comprehensive risk management (CRM) is a holistic approach to managing risks associated with climatic and non-climatic hazards. The approach intends to address and build long-term resilience among countries, vulnerable populations and communities, including resilience to loss and damage from extreme and slow onset events.

Annex 4. Risk Management in CGIAR

The CGIAR System Internal Audit Function undertook a comprehensive advisory engagement based on its 2022 workplan approved by the Integrated Partnership Board Audit, Finance and Risk Committee (IBP AFRC), with an emphasis on funding risk. The Status Report on Implementation of the Integrated Partnership Risk & Oversight Plan presented to the CGIAR Steering Committee spans three risk areas (strategic, operational and financial) and 13 risk categories.

Table 1. Areas and categories of risk considered by the CGIAR Risk Management Function

Risk Area	Risk Category
Strategic	• Change Management • Research Innovation • Partners & Partnerships • Scaling Impact
Operational	• Business continuity • Talent Management • Data Management • Health, Safety & Wellbeing • Ethics & Integrity • Legal and Regulatory Compliance • Infrastructure
Financial	• Funding • Financial Risk

The proposed CGIAR Integrated Partnership: Risk Management and Internal Controls Framework (SC22 07di) includes consideration of the ISO 31000:2018 International Standard on Risk Management as well as the Committee of Sponsoring Organizations of the Treadway Commission (COSO) principles.

The risk advisory engagement included several partnership wide efforts:

- A Risk Community of Practice (CoP) was established, and a funding risk assessment was prepared in November 2020 based on a survey of CGIAR centers.
- The 2023 Country/Regional Office Oversight Report considered whether the structures and processes established by CGIAR centers adequately establish a framework for effective regional/country operations oversight and accountability.
- The 2024 Supporting the CGIAR Environmental, Social, and Governance (ESG) Agenda that focusses on risks to CGIAR resulting from failure to consider ESG. Relevant center policies and strategies are identified, and the report notes that some centers signed up for the UN Global Compact.

Consideration of risk management in CGIAR Initiatives and later Science Programs and Accelerators has a similar focus on risks related to CGIAR's ability to deliver planned work toward achievement of its objectives (See CGIAR definition of risk management in Annex 4). The 2022-24 Initiatives were asked to follow a common approach to identify, report, and update their top risks as part of the 2023 Reflect process. The

online tool was updated in 2024 to accommodate the needs of the Programs and Accelerators, requiring teams to identify risks and risk owners, assess their likelihood and impact, and define mitigation actions. Teams are encouraged to manage risks on a continuous basis and regularly update their risk registers to ensure proactive and strategic risk management.

Risk management sections in the 2025 inception reports attest to an ongoing focus on factors that could affect deliver planned work toward achievement of its objectives, rather than risks to food systems as anticipated in the Way of Working (WoW). External shocks are largely addressed from the perspective of business continuity, including where teams considered risks outside the standard format.[23]

One program-Multifunctional Landscapes (MFL)-refers to conflicting consequences of innovations for environmental, productivity, social and economic aspects, noting there are some key trade-offs among environmental and productivity targets and social and economic objectives, not only for households but for other actors across landscapes.

The Genebank Initiative presents an unusual case in that genebanks and maintenance of its collections are vulnerable to direct threats arising in countries hosting genebanks (human made impacts such as conflicts, unrest and wars; natural disasters; new pests and diseases), several of which were experienced in the 2022-24 program-cycle (IAES, 2024).

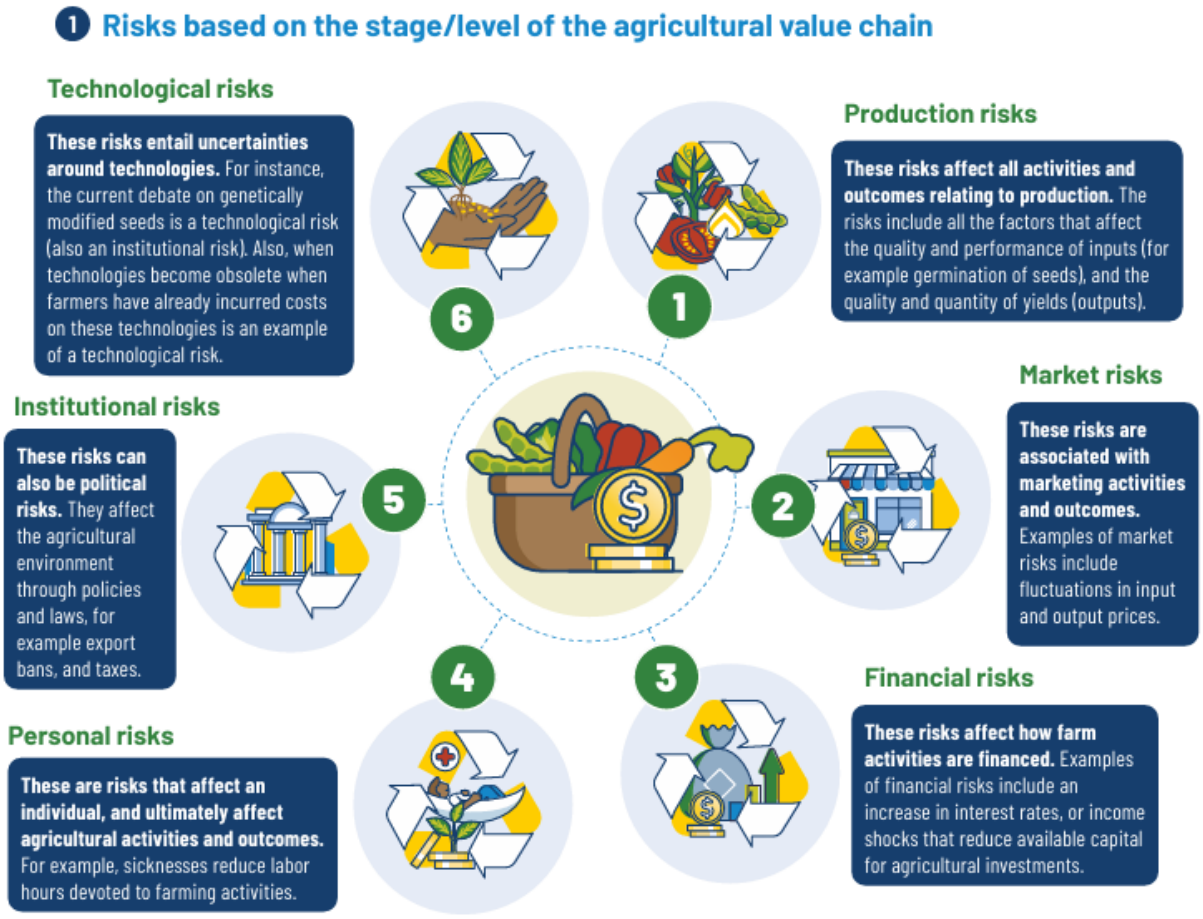
[23] Two programs (MFL and Food Frontiers and Security) refer to external shocks or events (natural disasters, climate related events, geopolitical dynamics and disease) that may affect food systems as well as operations and/or funding.

Annex 5. Types and Sources of Risk to Food Systems

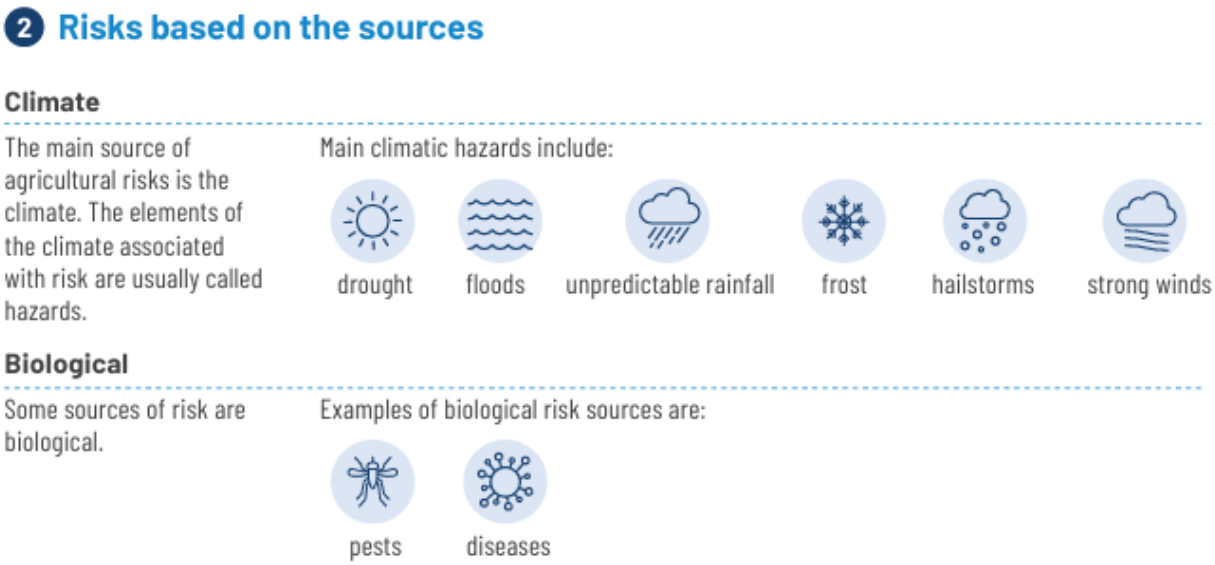
Risks to Food Systems

Types of Agricultural Risk

Figure 1. Types of agricultural risk



Source: Marabula et al., CIAT (2023)



Sources of risk associated with climate are often referred to as hazards (Marabula et al., 2022; IPCC, 2022), stressors or shocks.

Annex 6. Risk Management and Resilience Management Response Status

The Evaluation Function (EF) conducts process and performance evaluation to generate evidence on relevance, coherence, effectiveness, efficiency, and sustainability of CGIAR's research innovations. These evaluations are grounded in CGIAR's evaluation policy with a strong emphasis on learning and accountability. These evaluations contain recommendations for the management to implement. They are tracked in the CGIAR Management Response Tracking Dashboard. From this Dashboard, 13 out of 273 recommendations were identified that align with the risk management and resilience Way of Working (WoW), and were aggregated from seven evaluations conducted by the Evaluation Function. The table below presents the distribution of the recommendations per evaluation.

Table 2. Distribution of recommendations per evaluation

Evaluation	No. of Recommendations	Completed	On track	Not started	Delayed	Not updated
Genebank Platform Evaluation	1	0	1	0	0	
2021 Synthesis of Learning from a Decade of CGIAR Research Programs	6	1	0	4	0	1
Excellence in Breeding Platform Evaluation	2	2	0	0	0	
Evaluability Assessment Review of Four Regional Integrated Initiatives	1	0	0	0	0	1
Systems Transformation Science Group: Evaluation Report	2	1	0	0	0	1
Study of the Performance and Results Management System Project Management Approaches and Fit-for-Purpose Information Products	1	0	0	0	0	1
Total	13	4	1	4	0	4

Annex 7. Reviewed Programs and Accelerators Proposals–Inception Reports (June 2025)

Table 3. Reviewed programs and accelerators proposals-Inception reports (June 2025)

Science Program number	Program	Abbreviation used in this report
SP01	Breeding for Tomorrow	B4T
SP02	Sustainable Farming	SF
SP03	Sustainable Animal and Aquatic Foods	SAAF
SP04	Multifunctional Landscapes	MFL
SP05	Better Diets and Nutrition	BDN
SP06	Climate Action	CA
SP07	Policy Innovations	PI
SP08	Food Frontiers and Security	FFS
SP09	Scaling for Impact	S4I
SP10	Gender, Equality and Inclusion	GEI
SP11	Capacity Sharing	CapSha
SP12	Digital Transformation	DT
SP13	Genebanks	GB

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