



Foresight and metrics to accelerate inclusive and sustainable agri-food system transformation

Initiative Lead and Co-Lead	Primary CGIAR Action Area	Estimated 2022 - 2024 Budget
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Challenge

Two generations ago, the challenge facing agriculture was daunting but clear: the world needed to rapidly increase staple food production to meet rising demand. That goal was met but new ones arose, and today the challenges facing food, land and water systems are more numerous and complex: over 700 million people still live in absolute poverty, millions of young people join the global workforce every year; at least 2 billion people are hungry, micronutrient-deficient, or overweight or obese; gender gaps persist; natural resources are under stress; and climate change compounds these challenges. Addressing them is a priority, but trade-offs are unavoidable, and the choices facing national governments and their development partners have become increasingly complicated. "Business as usual" is not an acceptable option, but what are better pathways to more inclusive and sustainable development, and what actions are needed to get there? Decision-makers at global and national levels have expressed their need for better evidence on the challenges they face, which courses of action should be undertaken, and which policies and investments might minimize trade-offs and achieve collective goals. What is the appropriate balance between self-reliance and global integration, or between immediate welfare gains and long-term sustainability? Are these goals competing or complementary? These difficult questions demonstrate the clear need for cross-cutting capacity to understand system-level interactions and outcomes. Innovative use of data, best-in-class analytics, and deep and ongoing dialogue with global and national stakeholders offer better insights into alternative transformation pathways that can inform choices and sharpen decision-making today.

Objective

To provide the evidence and capacity needed to make the complex choices that shape the future of food-land-water systems, this initiative will improve and combine two foresight elements that are too often provided separately: rigorous analytics and close interaction with decision-makers. Systematic engagement, including annual forums with national governments, regional organizations and donor agencies, will help assess and articulate foresight needs, identify plausible and desired futures, create appropriate metrics, develop and apply fit-for-purpose interdisciplinary analytical tools, share results, and discuss implications for policies and investments that support inclusive, sustainable system transformation under uncertainty. The initiative will focus on systems-relevant indicators and processes over medium-to-longer-term time horizons, and capture interactions between socioeconomic and biophysical factors and between national, regional and global levels, recognizing the trade-offs and political economy considerations involved. The initiative will analyze six systems-level challenges (indicatively: risk and resilience under climate and other shocks; affordable healthy diets within planetary boundaries; inclusive agricultural transformation; transforming animal-source-food systems; transitioning to green economies; and enhancing system productivity), with a particular focus on poor populations in low-and-middle-income countries. Three challenges will be examined at global, regional and national scales, and three will focus on specific regions and countries. The intermediate objective is to show that better options than business-as-usual can address multiple complex challenges while minimizing trade-offs. The ultimate goal is to help decision-makers identify policy and investment options and socio-technical innovation bundles that lead towards inclusive and sustainable food-land-water systems, and associated improvements in nutrition, livelihoods, equity, climate resilience, and environmental quality.

Theory of Change

Achieving sustainable and inclusive development at multiple scales requires a shared understanding of drivers, trade-offs and priorities across food, land, and water systems, and compelling evidence and effective partnerships to support coordinated planning and action. This initiative works interactively with demand, innovation and scaling partners to address key foresight information needs for strategic planning. The initiative harmonizes and strengthens foresight data, methods and analysis across and beyond One CGIAR and identifies opportunities and trade-offs associated with alternative strategic pathways and actions across geographies and medium-to-longer-term planning horizons under climate and other risks. The initiative develops and maintains systems-level data and metrics to track progress and guide analysis, action, and learning. Novel mechanisms of engagement and learning with global, regional and national partners co-creates a shared information base and understanding of viable pathways to desired futures and priority actions to achieve them. Targeted training materials and virtual learning platforms bring sophisticated foresight resources to these partners in more accessible ways, fostering transparency, buy-in and uptake. This ongoing process of analysis and engagement will generate a regular cycle of global, regional and country outlook and thematic reports. By building trusted partnerships, responding to information needs, and providing credible and compelling evidence, the initiative will foster stakeholder alignment and informed decision-making, contributing to more cost-effective policies and investments (both public and private) that accelerate progress towards key outcome metrics of sustainable and inclusive development while minimizing potential trade-offs.

Given our global, regional and country focus and role in consolidating information from a wide range of sources, we will work closely with all Regional Integrated Initiatives (with particular focus in East and Southern Africa; West and Central Africa; Central and West Asia and North Africa; and South Asia) and with many of the Thematic Initiatives (including National Policies and Strategies for Food, Land and Water Systems Transformation; Market Intelligence for More Equitable and Impactful Genetic Innovation; SHiFT: Sustainable Healthy Diets through Food Systems Transformation; Harnessing Digital Technologies for Timely Decision-Making across Food, Land, and Water Systems; Transforming food systems from greenhouse gas sources to sinks (S2S); ClimBeR: Building Systemic Resilience against Climate Variability and Extremes; Rethinking Food Markets and Value Chains for Inclusion and Sustainability; Excellence in Agronomy- Solutions for Agricultural Transformation (EiA); NEXUS Gains: Realizing Multiple Benefits Across Water-Energy-Food-Forest-Biodiversity System; Transformational agroecology across food, land and water systems; ANIMALS - ActioNs for Innovative climate change Mitigation & Adaptation of Livestock Systems; Resilient Aquatic Foods for Healthy People and Planet; and others).

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Highlights

Consolidate, upgrade, and better utilize One CGIAR's strength in foresight analytics linked directly to in-country science on food, land and water systems, and establish a global center of excellence, in partnership with other experts, for research on the medium-to-longer-term drivers, trade-offs, and priorities of global, regional, and national agri-food systems.

Generate new systems-level data and metrics, linked to the Sustainable Development Goals, that capture important but not adequately quantified aspects of food-land-water systems to facilitate a more comprehensive approach to systems transformation, including tracking progress and informing strategic decision-making by national governments, donor agencies, private actors, and other stakeholders.

Establish a regular cycle of engagement and analytics, supporting co-creation of a shared evidence base on the constraints and drivers of food-land-water system transformation at global, regional, and national scales, including greater understanding of desired futures, uncertainty, trade-offs between alternative development pathways, and priorities for today's policies, investments, and research.

Provide targeted training materials and virtual learning platforms that make advanced foresight tools, data and insights more accessible and useful for a wider range of government, research, and development partners, particularly in regions facing the greatest challenges with the least capacity.

Provide cross-cutting capacity to aggregate and integrate interdisciplinary information and analytics from across One CGIAR and other partners, in order to explore system-level interactions and effects and inform decision-making by national, regional and global development partners.

Work Packages

	Scope of Work	3-year Outcomes
Innovative engagement and learning	Co-develop evidence to inform analytical and learning priorities with national, regional and international development partners through systematic horizon scanning, needs discovery, articulation of desired outcomes, scenario development, review of results and implications, and learning from ex-post assessments, to inform strategic decisions on development pathways to achieve desired futures under uncertainty.	Global partners, national governments, private sector actors, and researchers are actively engaged in a regular series of discussions and share foresight analytics that enable the development of a common understanding of current and alternative inclusive and sustainable food-land-water system pathways and priorities across spatial and temporal scales.
Upgrading foresight tools and analyses	With other leading researchers around the world, deliver a step-change in the accessibility, relevance and rigor of foresight efforts through enhanced socioeconomic and biophysical analytics and other foresight approaches that capture and clarify the complex, inter-related processes, outcomes and trade-offs faced in achieving pathways to desired futures.	National governments, regional organizations and development partners use information generated by a regular cycle of foresight engagement, analysis and reporting, leading to better targeted and more efficient and cost-effective policy and investment decisions.
Systems-relevant data and metrics	Develop and provide open access to new and improved spatially referenced and interoperable data, metrics and interactive exploration tools designed to support improved foresight articulation, analysis and learning and to track systems transformation and performance in relation the One CGIAR impact areas and Sustainable Development Goals.	Decision makers, researchers and other partners have access to new system-level metrics that better capture the drivers and outcomes of inclusive and sustainable transformation and use these data to better diagnose challenges, set priorities, manage risks, and track progress.
Advancing foresight skills	Develop training materials and programs to enhance access to and use of foresight-related data, metrics, models and results by key engagement partners. Efforts will be focused on selected countries (to be identified in collaboration with the National Strategies and Regional Integrated Initiatives), building greater levels of self-reliance.	National, regional and global partners have access to innovative training and delivery platforms so that their knowledge, aptitude and skills with foresight tools, data, and analysis are enhanced and their engagement and strategic planning processes more effective.

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Impact Area Contributions

Nutrition, health & food security	Contribute to achieving improved nutrition by providing national governments, regional organizations and funding agencies with credible and useful information on the impacts of changing demand, novel technologies, and alternative policy and investment strategies on nutrition-related outcomes, including diet costs and quality, under a range of climate and socioeconomic conditions.
Poverty reduction, livelihoods & jobs	Contribute to creating more decent jobs in agri-food systems and helping people move out of poverty by identifying sustainable, inclusive development pathways that enable CGIAR technologies and innovations and national policies and investments to more effectively reach target populations, including smallholder farmers, the working poor, and vulnerable consumers.
Gender equality, youth & social inclusion	Contribute to closing the gender gap, creating more and better livelihood opportunities for women and youth, and promoting inclusion of lagging regions and marginalized populations by analyzing the distributional implications of policy and investment options (including gender-intentional interventions), and identifying more equitable development pathways.
Climate adaptation & greenhouse gas reduction	Help improve adaptation to climate change and extremes through improved quantification of climate impacts and options to address them, and help reduce greenhouse gas emissions and increase carbon sequestration in agri-food systems through improved analysis of costs and benefits of alternative technologies and of changes in poverty, employment and diets.
Environmental health & biodiversity	Provide foresight analysis and data to help identify pathways that ensure that environmental sustainability is an outcome of food system transformation, recognizing that while food systems rely on the environment for inputs such as land, water, and genetic materials, agriculture is the biggest driver of environmental degradation.

Impact on SDGs



Regions

Global Central and West Asia and North Africa (CWANA), East and Southern Africa (ESA), Latin America and the Caribbean (LAC), South Asia (SA), South East Asia and the Pacific (SEA), West and Central Africa (WCA)

Countries



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Innovations

This initiative will design and implement a systematic process of engagement and learning, informing and supported by an annual cycle of reports on key food-land-water systems challenges, to meet the information needs of national governments, donor institutions, and other partners.

This initiative will consolidate, upgrade and improve access to a system of advanced foresight tools, including biophysical (e.g., land, water, crop, livestock, fish) and economic models (e.g., IMPACT, RIAPA), linked to specialized models of drivers (e.g., climate, energy, pests/diseases, demographics) and outcomes (e.g., poverty, jobs, gender).

This initiative will develop and improve access to data and metrics (e.g., agri-food system growth, jobs, resilience, inclusion, dietary quality, and TFP) to track system-wide performance and trade-offs and inform decision-making. New tools and a results database from ex-post evaluations will complement existing resources like ASTI and SPAM.

This initiative will focus on six challenges identified together with partners (indicatively: risk and resilience under climate and other shocks, affordable healthy diets within planetary boundaries, inclusive agricultural transformation, transforming animal-source-food systems, transitioning to green economies, and enhancing system productivity).

Targeted capacity-building materials and training programs will support enhanced data, tools, and engagement processes to improve understanding and ownership of foresight methods and results by partners, including analysts advising decision makers in national governments. Distance-learning courses will help train the next generation of foresight analysts in developing countries.

Key Partners

Demand	Foundation	BMGF
	Government	National governments (tbd)
		USAID
	Multilateral	Regional Development Banks
World Bank		
Innovation	Academic, Training and Research	Agricultural Model Intercomparison and Improvement Project (AgMIP)
		International research institutions
		National Agricultural Research Systems
		National and regional training institutions
		National universities
Scaling	Academic, Training and Research	National and regional research and training institutions
	Government	National governments (tbd)
	Multilateral	Regional Development Banks
		World Bank
Private Sector in Aid Recipient Country	Private sector actors (e.g., farmer and business associations)	

Foresight & Metrics to Accelerate Inclusive & Sustainable Agri-Food System Transformation: Theory of change

