



# CGIAR Research Initiative on **Foresight**

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

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

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

The 2024 CGIAR Technical Report comprises:

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

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

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

The diagram below illustrates these relationships.



# Section 1: Fact sheet, executive summary and budget

Initiative name	Foresight and Metrics to Accelerate Food, Land, and Water Systems Transformation
Initiative short name	Foresight
Initiative Lead	Keith Wiebe <u>(k.wiebe@cgiar.org)</u>
Initiative Co-lead	Elisabetta Gotor ( <u>e.gotor@cgiar.org</u> )
Science Group	Systems Transformation
Start – end date	01 April 2022 – 31 December 2024
Geographic scope	<b>Regions</b> East and Southern Africa · South Asia
	<b>Countries</b> Bangladesh · Brazil · China · India · Indonesia · Kenya · Malawi · Nepal · Rwanda · South Africa · Zambia
OECD DAC Climate marker adaptation score <sup>1</sup>	Score 1: Significant The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives – namely, climate mitigation, climate adaptation and climate policy, even though it is not the principal focus of the activity.
OECD DAC Climate marker mitigation score <sup>1</sup>	<b>Score 1: Significant</b> The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives—namely, climate mitigation, climate adaptation and climate policy—even though it is not the principal focus of the activity.
OECD DAC Gender equity marker score <sup>2</sup>	Score 1A: Gender accommodative/aware Gender equality is an objective, but not the main one. The Initiative/project includes at least two explicit gender specific outputs and (adequate) funding and resources are available. Data and indicators are disaggregated by gender and analyzed to explain potential gender variations and inequalities.
Website link	https://www.cgiar.org/initiative/foresight/
<sup>1</sup> The Organisation for Eq	anomic Co. aparation and Davelanment (OECD) Davelanment Accistance Committee (DAC) markers refer to the OECD DAC Pie Marker

Fhe Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) markers refer to the OECD DAC <u>Rio Markers</u> for Climate and the gender equality policy marker. For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal. <sup>2</sup> The CGIAR Gender Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.

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

## EXECUTIVE SUMMARY

Addressing future challenges to food, land, and water systems requires rigorous foresight analysis to understand interactions across multiple scales, trade-offs between goals, and options for achieving those goals. Yet most of the world's foresight tools and data systems pay insufficient attention to developing countries. The CGIAR Research Initiative on Foresight and Metrics to Accelerate Food, Land, and Water Systems Transformation (Foresight Initiative) worked with global and national partners to close this gap.

First, the Foresight Initiative maintained and enhanced unique modeling and data systems that allow state-ofthe-art analysis of food, land, and water systems in developing countries and across the world. These tools and data are international public goods that put CGIAR at the center of global foresight for food system transformation. For example, the SPAM database tracks, at a pixel-scale, where crops are produced around the world; the RIAPA country models track how agrifood systems link to national economies and populations in over 30 countries; and the IMPACT model captures global agrifood systems and trade and interactions with natural environments and climate. From 2022 to 2024, Foresight and its partners worked to ensure that CGIAR's modeling systems reflect the latest understanding of the drivers of food, land, and water system transformation. Our ability to track and project outcomes across all five CGIAR Impact Areas was also enhanced.

Second, Foresight made modeling systems more available and accessible. This included developing and disseminating documentation and software via the Initiative's Foresight Portal and other CGIAR and partner websites. Foresight also provided innovative training opportunities to strengthen the capacity of our partners to understand, use, and develop foresight tools. From 2022 to 2024, this included 14 training workshops conducted together with our partner research networks in Africa, South Asia, and Latin America, and the launch of a new and innovative online training course targeting graduate students in Africa. Importantly, Foresight partnered with the National Policies and Strategies Initiative to conduct workshops in their eight focus countries and to support their training-of-trainers strategy.

Third, Foresight **used modeling systems to conduct high-quality research with partners to address major development and policy concerns.** Working with leading national, regional, and global partners around the world (see Sections 3 and 5), Foresight conducted research on the major drivers of food, land, and water system transformation. This included analysis of climate, technological, and dietary change in global and national agrifood systems. Foresight partnered with national research centers in large developing countries to share capacity, incorporate their national perspectives, and foster cross-country exchange. Foresight also responded to demands for foresight and modeling analysis from government and other partners and responded to global shocks and food crises using the Initiative's Foresight and Rapid Response Modeling System. Having a dedicated research program with well-maintained modeling capabilities, coupled with flexibility to respond to unanticipated demands and crises, allowed the Initiative to influence the global foresight agenda and produce high-quality research outputs while also being policy relevant, timely, and impactful.

Finally, Foresight **communicated results** of joint analysis through ongoing engagement with governments, international organizations, funders, and other partners as part of an iterative process to inform decision-making about the future of food systems through enhanced knowledge, trust, and ownership of foresight analysis and findings by our partners at national, regional, and global levels.

	2022	2023	2024
PROPOSAL BUDGET D	\$8.40M	\$9.33M	\$10.27M
APPROVED BUDGET <sup>1</sup> »	\$6.70M	\$8.10M ²	\$7.79M <sup>2</sup>

<sup>1</sup> The approved budget amounts correspond to the figures available for public access through the <u>Financing Plan dashboard</u>. <sup>2</sup> These amounts include carry-over and commitments.



## Initiative-level theory of change diagram

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

## CHALLENGE STATEMENT

Two generations ago, the challenge facing agriculture was daunting but clear: the world needed to rapidly increase staple food production to meet rising demand. Although that goal was largely met, today's food, land, and water (FLW) systems are facing more numerous and complex challenges: more than 700 million people still live in absolute poverty; millions more young people seek jobs every year; nearly 2 billion people suffer from moderate or severe food insecurity, while 4 in 10 adults globally are poverweight or obese; gender gaps persist; natural resources are under stress; and water resources are polluted and depleted. Climate change compounds all these challenges, increasing uncertainty.

Addressing these interlinked challenges requires transformation of FLW systems. Synergies between impacts are possible, such as between poverty reduction, improved nutrition, and increased equity. But trade-offs between policies and investments to achieve these impacts are often unavoidable, given limited resources and disparate decision-making domains, and the choices facing national governments and their development partners have become increasingly complicated.

Decision-makers at global and national levels seek better evidence on the actions needed to minimize trade-offs and achieve collective goals. They require cross-cutting capacity to understand system-level interactions across spatial, political, and time scales, as well as across multiple thematic domains. Current studies often focus on individual commodities or regions, missing critical interlinkages between challenges. While integrated approaches are emerging, they often overlook the specific needs of low-and middle-income countries (LMICs).

The Foresight and Metrics Initiative addresses this gap by leveraging multidisciplinary expertise, innovative data use, and ongoing dialogue with stakeholders at national, regional, and global levels, focusing particularly on vulnerable populations. By combining advanced analytics and close engagement with decision-makers, it aims to provide better insights into alternative transformation pathways, informing better decisions today for a sustainable future.

## **RESEARCH QUESTIONS**

- What are the most effective integrated strategies and investments to improve nutrition, livelihood, equity, climate, and environmental outcomes in LMICs, given the synergies and trade-offs associated with different strategies?
- What are the likely impacts of "business-as-usual" scenarios on food insecurity, environmental degradation, and inequality in LMICs?
- How can decision-makers navigate these trade-offs and strategies to ensure that national policies align with global goals?
- How can we ensure that key foresight data, documentation, and models are available, findable, and accessible?
- How can we most effectively strengthen foresight capabilities at the national, regional, and global levels?
- How can the Initiative foster self-reliance and effective collaboration to advance resilient FLW systems and address pressing global challenges?
- How are the Initiative's networks improving partners' self-reliance capabilities (nationally and regionally) and effective partnerships (globally)?
- What engagement formats enable us to serve the needs of our partners for foresight and metrics capacity (including tools, analysis, and informing for decision-making)?

## SPHERE OF CONTROL

Work Packages

#### ORK PACKAGE 1

Megatrends affecting food, land, and water systems at global and regional scales (WP1).

#### WORK PACKAGE 2

Addressing regional and national challenges and priorities (WP2).

#### Vork Package 3

Enhancing access, transparency and use of tools, data, and metrics (WP3).

#### Work Package 4

Enhancing foresight skills and making learning actionable (WP4).





#### END-OF-INITIATIVE OUTCOMES

#### Action Area Outcomes

END-OF-INITIATIVE OUTCOME 1

Better-informed global and regional decision-making.

END-OF-INITIATIVE OUTCOME 2
Better-informed national policy choices.

END-OF-INITIATIVE OUTCOME 3
Improved access to foresight tools and data.

#### **END-OF-INITIATIVE OUTCOME 4**

Strengthened national foresight capacity.

1 • Global and regional institutions, such as funding agencies, international organizations, and coordinating bodies use CGIAR research evidence in the development of strategies, policies, and investments to drive sustainable transformation of food, land, and water systems contributing to livelihood, inclusion, nutrition, environmental and climate resilience objectives.

2 • National and sub-national government agencies use CGIAR research results to design or implement strategies, policies and programs which have the potential to transform food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate resilience objectives.

3 • Research institutions, government analytical units, and scaling partners in the Global South have improved knowledge, skills, access to data, capacity to develop tools, innovations, and undertake research to support transformation of food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate objectives.

4 • CGIAR partners develop and scale innovations that contribute to the empowerment of women and other social groups in food, land, and water systems.

## SPHERE OF INTEREST

IMPACT AREAS

#### NUTRITION, HEALTH & FOOD SECURITY

• End hunger for all and enable affordable health diets for the 3 billion people who do not currently have access to safe and nutritious food.

#### POVERTY REDUCTION, LIVELIHOODS & JOBS

• Lift at least 500 million people living in rural areas above the extreme poverty line of US \$1.90 per day (2011 PPP).

#### GENDER EQUALITY, YOUTH & SOCIAL INCLUSION

• Close the gender gap in rights to economic resources on, access to ownership of, and control over land and natural resources, for more than 500 million women who work in food, land, and water systems.

#### CLIMATE ADAPTATION & MITIGATION

 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.

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#### ENVIRONMENTAL HEALTH & BIODIVERSITY

 Stay within planetary and regional environmental boundaries: consumptive water use in food production of less than 2500 km3 per year (with a focus on the most stressed basins), zero net deforestation, nitrogen application of 90 Tg per year (with redistribution towards low-input farming systems) and increased use efficiency, and phosphorus application of 10 Tg per year.

Foresight



## Summary of progress against the theory of change

Addressing future challenges to food, land, and water systems requires rigorous foresight analysis to understand interactions across multiple scales, trade-offs between goals, and options for achieving those goals. Yet most of the world's foresight tools and data systems pay insufficient attention to developing countries. As a result, many policy decisions affecting the world's poor and malnourished populations and the resources they manage are made without the benefit of rigorous analysis of emerging challenges and policy trade-offs. Moreover, as food, land, and water systems transform, as linkages to global markets strengthen, and as climate change and other challenges become more pressing, the drive toward more comprehensive and sophisticated foresight tools is accelerating, leaving developing countries further behind. The Foresight Initiative worked with global and national partners to close this gap through four key actions that jointly contribute to the five CGIAR Impact Areas and multiple Sustainable Development Goals.

First, the Foresight Initiative maintained and enhanced unique modeling and data systems that allow state-of-the-art analysis of food, land, and water systems in developing countries and across the world. These tools and data are international public goods that put CGIAR at the center of global foresight for food system transformation. For example, the SPAM (Spatial Production Allocation Model) database tracks, at a pixel-scale, where crops are produced around the world; the **RIAPA** (Rural Investment and Policy Analysis) country models track how agrifood systems link to national economies and populations in over 30 countries in Africa, Asia, and Latin America; and the IMPACT (International Model for Policy Analysis of Agricultural Commodities and Trade) model captures global agrifood systems and trade and interactions with natural environments and climate. From 2022 to 2024, Foresight and its partners worked to ensure that CGIAR's modeling systems reflect the latest understanding of the drivers of food, land, and water

system transformation. This included incorporating the latest climate projections from the Intergovernmental Panel on Climate Change, expanding our ability to model extreme climate events and global market disruptions, and updating the drivers of technological change and productivity growth based on information from CGIAR Centers. Our ability to track and project outcomes across all five CGIAR Impact Areas was also enhanced.

Second, Foresight **made modeling systems more available and accessible**. This included developing and disseminating documentation and software via the Initiative's Foresight Portal and other <u>CGIAR</u> and partner websites. Foresight also provided innovative training opportunities to strengthen the capacity of our partners to understand, use, and develop foresight tools. From 2022 to 2024, this included 14 training workshops conducted together with our partner research networks in Africa, South Asia, and Latin America, including participants from 17 countries, and the launch of a new and innovative online training course targeting students in Africa. The Initiative also supported two graduate fellowships in livestock-related modeling. Importantly, Foresight partnered with the National Policies and Strategies Initiative to conduct workshops in their eight focus countries and to support their training-of-trainers strategy.

Third, Foresight **used modeling systems to conduct high-quality research with partners to address major development and policy concerns.** Working with leading national, regional, and global partners around the world (see Sections 3 and 5), Foresight conducted research on the major drivers of food, land, and water system transformation. This included analysis of climate, technological, and dietary change in global and national agrifood systems. Foresight partnered with major national agricultural research centers in key countries (Brazil, China, India, Indonesia, and South Africa) in four of the six CGIAR focus regions to share technical capacity, incorporate their national perspective, and foster crosscountry exchange. Foresight also responded to demands for foresight and modeling analysis from government and other partners and responded to global shocks and food crises using the Initiative's new Foresight and Rapid Response Modeling System. From 2022 to 2024, the Initiative also analyzed El Niño impacts in Eastern and Southern Africa; assessed the compounding effects of the recent pandemic and global food crisis; informed multilateral investment prioritization in the Asia-Pacific region; and supported the design and prioritization of national agricultural investment plans in four African countries. Having a dedicated research program with well-maintained modeling capabilities, coupled with flexibility to respond to unanticipated demands and crises, allowed the Initiative to influence the global foresight agenda and produce high-quality research outputs while also being policy relevant, timely, and impactful.

Finally, Foresight **communicated results** of joint analysis through ongoing engagement with governments, international organizations, funders, and other partners as part of an iterative process to inform decision-making about the future of food systems through enhanced knowledge, trust, and ownership of foresight analysis and findings by our partners at national, regional, and global levels.

The Foresight Initiative also encountered several challenges during the 2022–2024 period. Among these were **uncertainty in the amount and timing of funding** and adverse impacts of that uncertainty on the establishment of new partnerships, some of which were ultimately delayed. Another challenge involved **managing scope**. Foresight as an activity covers a vast scope, and indeed the entire CGIAR Portfolio of Initiatives conducts foresight in various ways on particular topics related to the future of food systems. Within that broad scope, the Foresight Initiative focused on links across diverse thematic areas, interactions across scales, and trade-offs between goals and Impact Areas, looking months to decades into the future. The Initiative necessarily focused on selected topics, goals, and geographies — to the exclusion of others. This required managing expectations while being responsive to partners' demands.

These and other areas of progress, challenge, and response are described further in Sections 3 to 7 below.



Credit: George Osodi/PANOS

## Progress against End of Initiative Outcomes

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



# EOI 1 (WP1)

## Better-informed global and regional decision-making

Global and regional partners contribute to and use foresight analysis to inform their decisions about investments to transform food, land, and water systems in ways that improve nutrition, livelihoods, equity, climate adaptation and mitigation, and environmental outcomes.



# EOI 2 (WP2)

## Better-informed national policy choices

Governments and other decision makers in at least five countries contribute to and use foresight analysis better reflect climate and other risks in policy dialogues and decision-making, including policies and investments designed to make food, land, and water systems more resilient, while recognizing synergies and trade-offs with other goals relating to nutrition, livelihoods, equity, and the environment.



# EOI 3 (WP3)

## Improved access to foresight tools and data

National, regional, and global partners in at least five countries and two regions contribute to and have access to state-of-the-art foresight tools, data, and systems-level metrics that identify major drivers and impacts on food, land, and water systems at national, regional, and global levels under alternative future scenarios.



# EOI 4 (WP4 with WP2 and WP3)

## Strengthened national foresight capacity

National partners in at least five countries where foresight capacity is still nascent, and other partners as appropriate, gain enhanced knowledge, aptitude and skills with foresight tools, data, metrics, and analysis relevant to food, land, and water systems, through access to innovative training and delivery platforms and through collaborative research. In 2024, Work Package 1 released updates to cutting-edge analytical tools, including the IMPACT and SPAM modeling systems and databases, working with leading research institutions around the world to analyze the major biophysical and socioeconomic trends affecting — and affected by — food, land, and water systems at global and regional scales over the next several decades. WP1 paid particular attention to interactions between Impact Areas and regions, which in turn shape the complex choices faced by decision-makers in the countries that are the focus of WP2. Building on the 2023 strategic partnerships with the Asian Development Bank, the World Bank, the Bill & Melinda Gates Foundation, the Food and Agriculture Organization of the United Nations, the United Nations Environment Programme, and the United States Agency for International Development, in 2024, we engaged with key global, regional, and national partners, including the Africa Network of Agricultural Policy Research Institutes (ANAPRI) and research teams from the National Agricultural Technology Institute (INIA, Argentina), the Brazilian Agricultural Research Corporation (Embrapa), the Chinese Academy of Agricultural Sciences (CAAS), the Indian Council of Agricultural Research (ICAR), and Badan Perencanaan Pembangunan Nasiona (BAPPENAS, Ministry of National Development Planning, Indonesia). Key results were presented during the Foresight Partnership Forum in Kathmandu, Nepal, in 2024, highlighting synergies and trade-offs across the five CGIAR Impact Areas. Partners used our data and analytical tools, including the IMPACT model, which enabled them to examine changes in land, water, climate, diets, pests and pathogens, and other factors more accurately to inform their policies and strategies.

Work Package 2 successfully provided modeling advice, tools, and expertise to national partners and decision-makers, and it greatly exceeded the original number of countries targeted for support. In terms of crises, WP2 conducted a rapid analysis of the Ukraine war's impacts on poverty and malnutrition in over 20 countries, and this directly informed the allocation of USD 1 billion of relief funding. WP2 responded to requests from ministries of planning for technical support, including a rapid analysis of El Niño's impacts on food security in Malawi and Zambia, leading to early policy responses in Malawi. Similarly, WP2 measured the economic costs of conflict in Sudan and the opportunity costs of humanitarian assistance in Ethiopia. In terms of strategies, WP2 helped ministries of agriculture prioritize their national investment plans, including, for example, Rwanda's Strategic Plan for Agriculture Transformation (PSTA V) and Tanzania's Agricultural Masterplan. WP2 also worked with the National Policies and Strategies Initiative to analyze Kenya's proposed agricultural withholding tax as part of a broader agenda to advance tax policy analysis in Kenya and Rwanda. In terms of capacity sharing, WP2 established a modeling unit supporting African agricultural research institutes and implemented annual training programs with African and South Asian modeling networks.

Work Package 3 enhanced access to foresight materials through an integrated portal launched in mid-2024. This portal serves as a central hub for foresight resources, including data, metrics, models, and tools supported by thorough documentation and user guides. The platform connects to a GitHub repository containing open-source code, making technical resources widely available. The portal serves diverse stakeholders globally including scientists, policymakers, private-sector entities, and non-governmental organizations (NGOs). By late 2024, it attracted 125 registered users (representing about 25 percent of unique visitors) from targeted geographies: over 20 African countries, 10+ Asian countries, and 10+ countries in Latin America and the Caribbean. The user base is approximately two-thirds men and one-third women, spanning various age groups. In addition, an active online discussion forum has engaged over 50 community members from both within and outside CGIAR. The combination of accessible resources, transparent documentation, and community engagement supported the democratization of foresight analysis. Importantly, these tools empowered analysts in low- and middle-income countries to utilize advanced data and metrics for improved policy and investment decision-making related to food, land, and water systems.

At the end of the three-year Initiative, national foresight capacity was strengthened in the following partner countries: Argentina, Brazil, China, India, Indonesia, Kenya, Nepal, South Africa, and Rwanda as well as in Cameroon, Ghana, Haiti, and Nigeria. Over the three years, there were 38 capacity-sharing initiatives aimed at strengthening economic modeling, policy planning, and foresight analysis. Training formats ranged from in-person to blended and virtual methods, ensuring accessibility. Participating organizations included national statistical offices, finance ministries, and research institutions, reflecting a strong policy engagement component. Of these, 14 were in-person training workshops, and they were conducted either by the Initiative itself or were embedded into ongoing training courses as modules/sessions. These engaged 1,179 participants with 259 self-reported as women. Across these trainings, their improved knowledge, attitude, skills, and practices (KASP) were captured through KASP surveys for the in-person training (WP2). Additionally, we put mechanisms in place to allow continued strengthening of the capacity of wider groups of people in form of individual PhD and MSc students, a complementary online training course, a foresight community of practitioners, and a Foresight portal with a forum section for discussions and (moderated) exchanges (WP3). WP1: Megatrends affecting food, land, and water systems at global and regional scales

#### **RESEARCH QUESTIONS END-OF-INITIATIVE OUTCOME 1** Which major drivers have the greatest potential Better-informed global and regional decision-making to affect FLW systems, both posit negatively, particularly in LMICs? sitively and What are the likely impacts of these major **1** • Global and regional partners have access to foresight analysis to inform their decision-making on policies and investments. 1 · Enhanced modeling tools. drivers on LMICs and their FLW systems under "business-as-usual" development pathways? 2 · Global Forum · Global synthesis & outlook report. 2 • Global and regional partners develop a shared situational awareness regarding policy challenges and priorities. What are the most effective strategies for better integrating policies and investment to improve nutrition, livelihood, equity, climate, and environmental outcomes in LMICs, given the synergies and trade-offs associated with different strategies? Can national policy choices and solutions "roll up" to address global challenges?

## Work Package 1 progress against the theory of change

In 2024, Work Package 1 released updates and enhancements to advanced analytical tools, including the IMPACT and SPAM modeling systems and databases, in collaboration with leading research institutions worldwide. These tools were used to analyze the major biophysical and socioeconomic trends affecting - and being affected by - food, land, and water systems at both global and regional scales over the next several decades. In response to growing demand from partners in 2023, we focused on a key innovation aimed at improving the understanding of these system impacts and policy options for low- and middle-income countries (Output 1.1.2). A multidisciplinary team of scientists from 11 CGIAR entities and various partner institutions contributed to this important output. In 2024, national governments, agricultural research systems, universities, and CGIAR Centers incorporated our data and analytical tools, including the IMPACT model, into their analyses. These tools enabled them to assess changes in land, water, climate, diets, pests and pathogens, and other factors with greater accuracy to inform their policies and strategies (Innovation use 18663).

In April 2024, the CGIAR Initiative on Foresight and the Institute for Integrated Development Studies (IIDS, Nepal) hosted the Foresight Partnership Forum and Training in Kathmandu, Nepal. The fourday event gathered key partners from across Asia, Africa, and Latin America to share insights on the complex challenges facing food, land, and water systems and to strengthen local foresight and policy modeling capacity.

During the event, we interviewed Foresight Initiative partners from Argentina, Brazil, China, India, Indonesia, and South Africa. We asked them two questions: (1) "Why did you join the Foresight Initiative and how is this partnership helping you address food system issues in your countries?" and (2) "How is the use of Foresight models advancing or informing strategies in your country?" (Other outcomes 18594).

Additionally, we continued our series of briefs on the state of foresight analysis regarding significant changes that will impact food, land, and water systems in the coming decades. In 2024, these focused on the future of food, land, and water systems in terms of Impact Areas (environment) and commodities (maize value chain) as well as food systems and measures and the future of urbanization in relation to food system transformation. This collection fed into a global synthesis report (Output 1.2.1) highlighting synergies and trade-offs across CGIAR's five Impact Areas.

## WP2: Addressing regional and national challenges and priorities



## Work Package 2 progress against the theory of change

Work Package 2, in collaboration with partners, developed country modeling and data systems capable of evaluating the impacts of different risk factors, development pathways, and investments. These were developed for all six of WP2's focus countries (Bangladesh, Kenya, Malawi, Nepal, Rwanda, and Zambia). First, six country databases were constructed to track agrifood systems, poverty, and malnutrition. These "social accounting matrices" were made freely available online. Second, to establish baseline scenarios for the models, national research institutes in each focus country reviewed the historical drivers of agricultural growth and produced summary reports. In addition, CGIAR researchers produced companion studies decomposing historical agrifood system growth. Third, and finally, the modeling systems were used to evaluate and compare the different risks facing agrifood systems and vulnerable populations in each focus country, including climate-driven production variability and world price fluctuations. This novel approach combined economywide modeling with machine learning techniques. The methodology is a published working paper and six published briefs summarize each country's analysis. An earlier approach to modeling climate risks (for Malawi) was published in a journal article. The models used to analyze climate risks were also used to inform national policy documents (e.g., Rwanda's PSTA V) and crisis-response (e.g., El Nino in Malawi).

During the 2022–2024 period, WP2 used modeling tools and analysis to inform national agricultural strategies and policies and to evaluate and help partners respond to unanticipated shocks and crises. Five examples of WP2's EOIOs include the following. (1) Working with Tanzania's Agricultural Transformation Institute to model the Ministry of Agriculture's flagship investment areas and to measure returns on investments to inform the new Agricultural Master Plan. (2) Working with Rwanda's Ministry of Agriculture to evaluate impacts and prioritize budgets for Rwanda's PSTA V. (3) Working with the Kenya Institute for Public Policy Research and Analysis (KIPPRA) to evaluate the potential impact of Kenya's proposed withholding tax on agricultural cooperatives, with findings presented to government partners. (4) Modeling the potential impacts of El Niño on agrifood systems, poverty, and malnutrition in Malawi on behalf of the National Planning Commission and to support the country's policy response to the crisis. (5) Working with development partners to rapidly analyze the impacts of the Russia-Ukraine War and resulting world price spikes on poverty and malnutrition in more than 20 developing countries, which directly informed the allocation of donor fund allocations (country engagement and policy advice were delivered together with the National Policies and Strategies Initiative).

WP3: Enhancing access, transparency, and use of tools, data, and metrics



## Work Package 3 progress against the theory of change

Work Package 3 focused on enhancing access, transparency, and use of foresight material — including data, metrics, models, tools, publications, and other resources — to support foresight analysis for improved policy and investment decision-making related to the transformation of complex dynamic food, land, and water systems. This outcome is supported by a set of openly accessible assets such as the <u>foresight portal</u>, with its linked <u>foresight GitHub</u> repository containing <u>open-source foresight tools code</u>. The portal also provides introductions, explainers, and in-depth information about key data and metrics and foresight-related <u>models and tools</u>. Through the portal the <u>foresight community</u> accesses an online discussion forum space and online training material.

The foresight portal allows key foresight-related material to be more findable, accessible, and reusable as it provides both links to resources and relevant foresight context. Documentation of models, tools, data, and metrics is crucially important. This documentation includes explainers about the resources, the scientific background, often in peer-reviewed journal articles, and user guides. Launched in mid-2024, the portal serves scientists, policymakers, private-sector representatives, NGOs, and others across the globe. Users are both men ( $\frac{2}{3}$ ) and women ( $\frac{2}{3}$ ) and of diverse age brackets. At the end of 2024, the 125 registered users represented approximately one-quarter of all unique visitors and came from our target geographies, including over 20 countries in Africa, over 10 in Asia, and over 10 in Latin America and the Caribbean. The number of registered users continues to increase, with over 50 members of the foresight community (both within and outside CGIAR) joining the discussion forum.

The foresight portal's accessible and transparent resources, opensource tools through the GitHub repository, and open community tools supported the democratization of foresight analysis. The new tools made available through the portal enhanced the ability of foresight analysts in low- and middle-income countries to use stateof-the-art data and metrics.

## WP4: Enhancing foresight skills and making learning actionable

#### **RESEARCH QUESTIONS**

- What are the most suitable monitoring and evaluation tools and systems to help monitor and learn from implementation?
- How are the networks of the foresight ecosystem changing over time and through the Initiative's engagement on improving partners' self-reliance capabilities (nationally and regionally) and effective partnerships (globally)?
- How can we use trainings (in-person, online, Communities of Practice) to strengthen foresight capacity with our national, regional, and global partners, to support self-reliance for national partners?
- What engagement formats would serve the needs of our partners for foresight and metrics capacity (including tools, analysis, and informing of decision-making)?

Vork Package 4		END-OF-INITIATIVE OUTCOME 4
OUTPUTS	OUTCOMES	Strengthened national foresight capacity
<ol> <li>Demand-driven capacity strengthening.</li> <li>Results monitoring and internal MELIA system.</li> <li>Knowledge Sharing.</li> </ol>	<ul> <li>7 • Partners can use foresight tools and metrics themselves.</li> <li>8 • National partners are informed consumers of foresight analysis.</li> </ul>	

## Work Package 4 progress against the theory of change

The Initiative differentiated its partners into three tiers for capacity strengthening: Tier 1, users of results and reports; Tier 2, experts who run models and generate results; and Tier 3, experts who code the models. The outcomes targeted Tier 1 and Tier 2 actors in its theory of change.

Evidence from six focus countries shows that at least three national partners in Tier 2 have used foresight tools for informed policy and investment recommendations on food, land, and water systems. In Argentina, partners used Foresight tools to simulate food, land, and water systems in other countries, aiding policy discussions (WP4 outcome 1 and 2). In Brazil, a new partnership with the Initiative helped build a network, enhance foresight capacity, and support R&D and strategic planning (Embrapa). In India, foresight tools helped quantify trade-offs in food, land, and water system transformations under uncertainty, introducing them to multidimensional impact measurement (ICAR).

In Tier 1, Indonesian partners will use the projections from the tools to inform national development plans, with the planning ministry using them to design programs (Bappenas).

Additionally, the Initiative extended beyond its targets by engaging Tier 3 users, such as in South Africa and China. In China, partners integrated foresight models with their national agricultural sector models to simulate global impacts, analyzing broader dimensions like climate and technological change (CAAS). In South Africa, the Initiative facilitated international collaboration while leveraging local expertise (Bureau for Food and Agricultural Policy, BFAP).

Beyond the six partner focus countries there is also evidence of the Foresight Initiative's contribution to strengthened capacities in Tanzania (informing their <u>Agricultural Masterplan</u>), Rwanda (launching its 5th Strategic Plan for Agriculture Transformation), Kenya (work on its agricultural withholding tax in collaboration with the CGIAR National Policies and Strategies [NPS] Initiative, the RIAPA modeling analysis where NPS organized a dissemination event), Malawi (analysis of El-Niño impacts), and Ukraine (in close collaboration with NPS).

The Foresight Initiative invested also in developing and putting mechanisms in place that will enable continued capacity strengthening with existing and new partners. These mechanisms included a community of practitioners (CoP) inclusive of implementing partners and CGIAR expertise, an online training course with modules on Computable General Equilibrium (CGE) and IMPACT modelling, and the integration of (doctoral and master's level) students in the Initiative's research and training events. Both the CoP and online training course have an accessible place in the public domain in the future in the form of the Foresight Portal with its Forum for discussions, exchanges, and moderated sessions.

Overall, the Initiative successfully strengthened foresight capacity across all tiers, improving decision-making, strategic planning, and fostering international collaboration.

# WORK PROGRESS RATING & RATIONALE

On track

## 1

WP1 enhanced cutting-edge analytical tools, working with leading research institutions around the world to analyze the major biophysical and socioeconomic trends affecting — and affected by — food, land, and water systems at global and regional scales over the next several decades.

### 2 On track

WP2 made significant contributions to advancing country modeling and data systems to assess risk factors, development pathways, and investments across six focus countries: Bangladesh, Kenya, Malawi, Nepal, Rwanda, and Zambia. Over the past three years, WP2 utilized modeling tools and analysis to shape national agricultural strategies, evaluate policies, and support partners in responding to unexpected shocks and crises.

## 3 On track

Considerable progress was made with the launch of the Foresight Portal and overcoming all remaining technical challenges. The Portal provides access and transparency around foresight models and tools and data and metrics. The foresight community of practice has its home on the Foresight Portal.

## 4 On track

National partners' foresight capacity was strengthened for 1,179 participants from national statistical offices, finance ministries, and research institutions in Argentina, Brazil, China, India, Indonesia, Kenya, Nepal, South Africa, and Rwanda, as well as in Cameroon, Ghana, Haiti, and Nigeria, through a mix of in-person to blended and virtual capacity-sharing initiatives aimed at strengthening economic modeling, policy planning, and foresight analysis.

## Definitions



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



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



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

# Section 4: Quantitative overview of key results

This section provides an overview of results reported and contributed to, by the CGIAR Initiative on Foresight from 2022 to 2024. These results align with the <u>CGIAR Results Framework</u> and Foresight's theory of change. Further information on these results is available through the <u>CGIAR Results Dashboard</u>.

The data used to create the graphics in this section were sourced from the CGIAR Results Dashboard on 04 April 2025. These results are accurate as of this date and may differ from information in previous Technical Reports. Such differences may be due to data updates throughout the reporting year, revisions to previously reported results, or updates to the theory of change.

## OVERVIEW OF RESULTS BY CATEGORY



Rather than targeting specific policy changes, Foresight sought to inform how tens of thousands of decision-makers around the world understand their situations and outlooks and make better decisions today to arrive at improved food systems in future. It did this through innovation in analytical tools, making those tools accessible, strengthening capacity of partners, and conducting high-quality collaborative research. Foresight produced a total of 486 results, including 333 knowledge products, 26 innovation developments, 38 capacity sharing results, 3 policy changes, 4 innovation uses, and 11 other outcomes. Out of 17 Sustainable Development Goals (SDGs) and 169 SDG targets, Foresight also contributed to 16 SDGs and 89 targets from 2022 to 2024.



## NUMBER OF RESULTS BY IMPACT AREA CONTRIBUTION

• 2 = Principal: Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.

• 1 = Significant: The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.

• **0 = Not targeted:** The result has been screened against the Impact Area, but it has not been found to directly contribute to any aspect of the Impact Area as it is outlined in the <u>CGIAR 2030 Research and Innovation</u> strategy.

• Not applicable: Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

Foresight's work addressed all five of CGIAR's Impact Areas, with a particular focus on poverty and nutrition from 2022 to 2024. Much of Foresight's work also included an explicit focus on climate change, including modeling the impacts of long-term climate change and shorter term climate variability on productivity, prices, and food security. An increasing share of our work included an explicit focus on gender and inclusion, including model-based evaluations of employment and social protection programs targeting women in Africa.

## CONTRIBUTIONS TO THE UN SUSTAINABLE DEVELOPMENT GOALS (SDGs)



Foresight's **contributions** focused on CGIAR's Systems Transformation Science Group but also extended to its Resilient Agrifood Systems and Genetic Innovation Science Groups. Reflecting our focus on interactions across food system challenges, regions, and impacts, Foresight contributed to multiple SDGs and all five of CGIAR's Impact Areas during the 2022–2024 period.

## GEOGRAPHIC FOCUS OF RESULTS (2022-2024)



Results reflect our **regional focus** in East and Southern Africa and South Asia, including our six focus countries in those regions, and our global work. Engagement in these regions included capacity strengthening, joint analysis, co-creation of knowledge products, and dialog to inform decision-making from 2022 to 2024.

#### CONTRIBUTING PARTNERS TO RESULTS



Foresight **partners** with policy research institutes closely connected to national governments in 18 countries in Africa and South Asia. From 2023 to 2024 we expanded our partnership network to include leading agricultural research institutions in key regional economies across the global South, namely China, India, Indonesia, South Africa, Brazil, and Argentina.



## NUMBER OF RESULTS BY CONTRIBUTING PARTNER TYPOLOGY

Foresight reported 486 results during the 2022–2024 period, of which 333 were knowledge products. Reflecting our commitment to improving **access** to foresight data, modeling tools, and results, almost all were findable and accessible and most were also interoperable and reusable. FAIR (findability, accessibility, interoperability, and reusability) scores refer to a set of principles that support the reusability of digital assets. FAIR scores are calculated based on the presence or absence of metadata in the CGSpace repository. <u>CGIAR Open and FAIR Data Assets Policy</u>

## NUMBER OF INDIVIDUALS TRAINED BY THE INITIATIVE



Short-term trainees: Short-term training refers to training that goes for less than three months.

As part of its program of capacity sharing for development, Foresight conducted 28 short-term training events from 2022 to 2024, providing a total of 2,184 persondays of training to 1,179 people trained from 17 countries in Africa, Asia, and Latin America.

## INNOVATIONS READINESS LEVELS AND PROGRESS OVER THE 2022-2024 PERIOD

0		Pipeline overview # of innovations
9	<b>PROVEN INNOVATION</b> The innovation is validated for its ability to achieve a specific impact under uncontrolled conditions	3
8	UNCONTROLLED TESTING The innovation is being tested for its ability to achieve a specific impact under uncontrolled conditions	2
7	<b>PROTOTYPE</b> The innovation is validated for its ability to achieve a specific impact under semi-controlled conditions	4
6	SEMI-CONTROLLED TESTING The innovation is being tested for its ability to achieve a specific impact under semi-controlled conditions	5
5	MODEL/EARLY PROTOTYPE The innovation is validated for its ability to achieve a specific impact under fully-controlled conditions	4
4	CONTROLLED TESTING The innovation is being tested for its ability to achieve a specific impact under fully-controlled conditions	1
3	<b>PROOF OF CONCEPT</b> The innovation's key concepts have been validated for their ability to achieve a specific impact	4
2	FORMULATION The innovation's key concepts are being formulated or designed	2
1	BASIC RESEARCH The innovation's basic principles are being researched for their ability to achieve a specific impact	0
0	IDEA The innovation is at idea stage	1



#### 9 Proven Innovation + 8 Uncontrolled Testing + 7 Prototype + 6 Semi-Controlled Testing + 5 Model/Early Prototype + 4 Controlled Testing + 3 Proof of Concept + 2 Formulation + 1 Basic Research + 0 Idea + D Discontinued

Over the 2022–2024 period, Foresight submitted 17 **innovations** and contributed to 3 more developed in collaboration with other Initiatives (Market Intelligence, Digital Innovation, and National Policies and Strategies). Of this total of 20 innovations, 4 were at early stages (up to proof of concept), 14 were at intermediate stages (up to prototype), 2 in uncontrolled testing, and 3 were proven innovations. (In addition to results formally reported as innovations, we note that innovations are taking place throughout the Initiative's activities — in engagement, in capacity sharing, in data and models, in analysis, and in communication of results.)



FORESIGHT'S EXTERNAL PARTNERS

Source: Prepared by the Foresight Initiative

## Partnerships and Foresight's impact pathways

The Foresight Initiative partnered with numerous national and global research institutes and networks to develop state-of-the-art analytical tools, make them accessible, strengthen capacity, and produce high-quality collaborative research to inform decisionmaking by national governments, international financial institutions, and funding institutions, including the Bill & Melinda Gates Foundation. At the national and regional levels, Foresight partnered with ANAPRI and its member centers in 16 countries, along with other policy research institutes such as KIPPRA, to strengthen capacity, conduct joint research, and inform decision-making by national governments. In 2023, a similar partnership was initiated with the South Asia Network of Economic Modeling (SANEM), including the Bangladesh Institute of Development Studies and IIDS in Nepal. Foresight also partnered with leading agricultural research institutes in large regional economies across the global South, such as CAAS, ICAR, BFAP in South Africa, Embrapa, the National Research and Innovation Agency (BRIN) in Indonesia, and the Institute for International Negotiations on Agriculture (INAI) in Argentina. These technical partnerships supported capacity sharing, information exchange, and improved agrifood system foresight and outlook work in these key countries as well as regionally and globally.

At the global level, Foresight worked with the Agricultural Model Intercomparison and Improvement Project (AgMIP) global economics group of universities and research institutes with foresight modeling expertise in the fields of agriculture, climate change, and food security. Members include Wageningen University, the International Institute of Applied Systems Analysis, the Potsdam Institute for Climate Impact Research, and others. Working with Cornell University and AgMIP partners, Foresight contributed to the EAT-Lancet 2.0 Commission, which is currently updating its recommendations for achieving healthy and sustainable diets. One of Foresight's key contributions in these collaborations, beyond tools and data, was its emphasis on developing countries within the global context. Foresight also partnered directly with other leading universities in related fields, including MIT and Oxford University, and contributed to the Food Systems Countdown Initiative. Overall, Foresight's partnerships with global and national networks and research programs allowed it to contribute to both global and national policy dialogue and decision-making toward equitable and sustainable agrifood system transformation.

Participants in the Foresight Partnership Forum in Kathmandu, Nepal, April 2024. Credit: Evgeniya Anisimova, IFPRI

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#### FORESIGHT'S INTERNAL NETWORK OF COLLABORATIONS

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

## Portfolio linkages and Foresight's impact pathways

The Foresight Initiative worked closely with other CGIAR Initiatives to achieve shared goals and outcomes, including the following.

- With the National Policies and Strategies (NPS) Initiative and national partners to analyze impacts of El Niño and other agrifood system shocks on prices, incomes, and food security and to engage with decision-makers to inform policy choices; and to conduct agrifood system diagnostic studies in these same countries, as well as states in India. Foresight's public goods allowed NPS to provide timely, high-quality analysis for various government requests and facilitate cross-country comparisons and global trends. Additionally, Foresight offered training materials that NPS was able to adapt and deliver in-person, often through training-of-trainers approaches.
- With the **Climber Resilience and Mitigate+** Initiatives to analyze climate change impacts and options for adaptation and mitigation in focus countries.
- With the **Gender Platform** and **HER+** to assess the state of foresight knowledge on gender and food system transformation and to analyze investment needs to close gaps in gender earnings.

- With the Excellence in Agronomy Initiative on how climate risks affect crop yields and farm management practices.
- With the Diversification in East and Southern Africa Regional Initiative to analyze impacts of climate change on production of major commodities in Eastern and Southern Africa and to explore policy options to increase diversification.
- With the **Market Intelligence (MI)** Initiative to analyze the potential of different breeding investments to meet changing patterns of demand and supply under alternative future socioeconomic and climate conditions. MI used Foresight information to (1) enrich its set of impact opportunity and projected benefit indicators with future projections, and (2) project its set of "current" market segments to the future.
- With the **Digital Innovation** Initiative and other partners to develop new ways to share foresight-related data and models.
- With the **Sustainable Healthy Diets** Initiative and other partners to analyze the cost of healthy diets for different regions and population groups under alternative future scenarios.

• With other Initiatives through sharing of foresight-related data, tools, and staff expertise.

Foresight also worked with **all five CGIAR Impact Area Platforms** to prepare briefs on what we know about the future of food systems in relation to poverty, nutrition, gender, environment, and climate.

Foresight's work to develop cutting-edge analytical tools, strengthen accessibility and capacity, and produce high-quality research to inform decision-making also complemented related non-pooled (bilateral) projects, including:

• With the **Bill & Melinda Gates Foundation** and other funders to develop new tools and metrics to track the drivers of inclusive

agricultural transformation; to support the Foresight and Rapid Response Modeling System and analyze climate and global market shocks; to develop and document country model databases; and to inform national and development partner investment priorities within the agrifood system.

- With the EAT-Lancet Commission to examine the impacts of future diets on health and planetary boundaries — including improving attention to issues of concern in low-income countries.
- With the **Asian Development Bank** to analyze challenges to food systems in the Asia-Pacific region under changes in climate, demographics, and markets and to explore policy and investment options to address these challenges.



## Building partnerships to strengthen foresight analysis and inform policy

The CGIAR Research Initiative on Foresight and Metrics to Accelerate Food, Land, and Water Systems Transformation (Foresight) built partnerships to strengthen foresight capacity, conduct analysis, and inform policy in Africa, Asia, and Latin America.



#### **Primary Impact Area**



#### **Contributing Initiatives**

National Policies and Strategies Initiative · Diversification in East and Southern Africa Regional Initiative · Climate Adaptation & Mitigation Impact Area Platform · Poverty Reduction, Livelihoods and Jobs Impact Area Platform

#### **Contributing Centers**

#### **Contributing external partners**

Bangladesh Institute of Development Studies (BIDS) · Bogor Agricultural University (IPB) · Bureau for Food and Agricultural Policy (BFAP) · Chinese Academy of Agricultural Sciences (CAAS) · Empresa Brasileira de Pesquisa Agropecuária (Embrapa) · Indian Council of Agricultural Research (ICAR) · Indonesian National Research and Innovation Agency (BRIN) · Institute for Integrated Development Studies (IIDS) · Institute for International Agricultural Negotiations (INAI) · Ministry of Agriculture and Livestock Development (Nepal) (MOALD) · Ministry of National Development Planning (MNDP, Indonesia) · Nepal Agricultural Research Council (NARC) · Bill & Melinda Gates Foundation (BMGF) · U.S. Agency for International Development (USAID) Geographic scope



**Regions:** Global; East and Southern Africa; and South Asia Latin America and the Caribbean · Southeast Asia

**Countries:** Argentina · Brazil · China · India · Indonesia South Africa · Kenya · Rwanda · Malawi · Zambia Bangladesh · Nepal · Ukraine CGIAR's Foresight Initiative built partnerships to strengthen foresight capacity, conduct analysis, and inform policy decisions in Africa (the ANAPRI network of agricultural policy research institutes in 17 countries in sub-Saharan Africa), Asia (the SANEM network of economic modelers in South Asia), and major regional partners in China (CAAS), India (ICAR), Indonesia (Bappenas), South Africa (BFAP), Brazil (Embrapa) and Argentina (INAI). This shared capacity strengthened nationally led policy analysis of food system challenges confronting partners and opportunities to address them.

### Challenge

Addressing future challenges to food, land, and water systems requires rigorous foresight analysis to understand interactions across multiple scales, trade-offs between goals, and options for achieving those goals. Yet most of the world's foresight tools and data systems pay insufficient attention to developing countries. As a result, many policy decisions affecting the world's poor and malnourished populations and the resources they manage are made without the benefit of rigorous analysis of emerging challenges and policy tradeoffs. The Foresight Initiative worked with global and national partners to close this gap and jointly contribute to the five CGIAR Impact Areas and the multiple UN Sustainable Development Goals.

#### Objective

The Foresight Initiative worked with global and national partners to address this challenge and jointly contribute to the five CGIAR Impact Areas and to multiple UN Sustainable Development Goals. It sought to do this by developing and applying state-of-the-art foresight data and modeling tools in combination with close engagement with decision-making partners and their technical advisors at national, regional, and global levels. This was achieved through an iterative process of dialog, capacity sharing, and analysis.

#### Solutions

The Foresight Initiative used close engagement with partners and sophisticated modeling systems to conduct high-quality research to address major development and policy concerns. Working with leading national, regional, and global partners around the world, the Foresight Initiative conducted research on the major drivers of food, land, and water system transformation. The Foresight Initiative

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partnered and provided capacity strengthening to agricultural policy research institutes in 17 countries in Africa through ANAPRI and with partners in South Asia through the South Asia Network of Economic Modelers (SANEM).

The Foresight Initiative also partnered with major national agricultural research centers in larger middle-income countries that are key players in their respective regions and globally (Embrapa in Brazil, the Institute for Agriculture and Economic Development of the Chinese Academy of Agricultural Sciences in China, the National Institute of Agricultural Economics and Development of the Indian Council for Agricultural Research in India, the Ministry of National Development/Bappenas in Indonesia, and the Bureau for Food and Agricultural Policy in South Africa).

These partnerships included sharing technical capacity, incorporating partners' national perspectives, conducting joint analysis, and fostering cross-country exchange. Foresight also responded to demands for foresight and modeling analysis from government and other partners and provided quick-response analyses to global shocks and food crises, including impacts of the Russia-Ukraine conflict and of COVID-19 on food systems in around 20 low-income countries.

#### Beneficiaries

Foresight activities inform choices made today to improve food systems in the future. Beneficiaries of the activities of the Foresight Initiative include (directly) more than 1,000 people from agricultural and policy research institutes in over 20 countries in Africa, Asia, and Latin America whose foresight analytical skills and capacities were strengthened through training and collaboration and (indirectly) the policymakers who are advised by those whose capacities were strengthened and the wider constituencies those policymakers serve.

#### Activities

As part of its program of capacity sharing for development, Foresight conducted 28 training events over its three years of operation, providing 2,184 person-days of training to 1,179 people from 17 countries in Africa, 4 countries in Asia, and 2 countries in Latin America. These partnerships were further strengthened through two Foresight Partnership Forums, the first in Nairobi, Kenya, in January 2023, and the second in Kathmandu, Nepal, in April 2024.

My ministry is responsible for formulating Indonesia's National Development Plan. We need the evidence base for policy formulation, so the Foresight Initiative is highly relevant for what we do. The findings will help us determine the interventions and activities that we are going to implement in our development process."

Ifan Martino, Development Planner, Ministry of National Development Planning/Bappenas, Indonesia

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A look into the future is essential for us for strategic planning and developing policies. The Foresight Initiative offers quantitative information about the impact of policies, which is very important for policymakers, especially in a context of great expectations and complex challenges like we have in food systems today."

Vanessa da Fonseca Pereira, Embrapa, Brazil







## CGIAR Initiative on Foresight

## 2022 key result story

Foresight analysis helps governments anticipate and mitigate impacts of the Russia–Ukraine war on poverty and food security in developing countries



CGIAR Research Initiative on Foresight 2023 key result story

Bridging Gaps: Foresight Training Programs for Policy Decision-making