

AIM FOR SCALE

Strategy, Functions, and Governance

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EXECUTIVE SUMMARY

The Agricultural Innovation Mechanism for Scale (AIM for Scale) is a new global initiative dedicated to addressing one of the most persistent challenges in agricultural development: the failure of proven innovations to achieve widespread adoption in low- and middle-income countries. Despite decades of investment in agricultural research, productivity growth has slowed, food insecurity has risen, and hundreds of millions of smallholder farmers remain trapped in poverty. AIM for Scale seeks to bridge the gap between innovation and adoption by coordinating funders, assessing scalable solutions, and supporting national and regional strategies that translate proven technologies and practices into lasting impact.

Announced at COP28 by the United Arab Emirates and the Gates Foundation, AIM for Scale builds on the work of the Innovation Commission for Climate Change, Food Security, and Agriculture. With initial funding beginning in 2025, it is piloting efforts around advanced weather forecasting and digital advisory services. Its model draws on lessons from vertical global health funds such as Gavi, the Vaccine Alliance, which successfully scaled innovations through pooled procurement, co-financing, and multi-sector partnerships. AIM for Scale will adapt these lessons to agriculture, complementing broader efforts at agricultural system reforms.

This report identifies the institutional and financial gaps AIM for Scale is designed to fill. These include fragmented and short-term funding, “pilots to nowhere,” weak coordination between funders and implementers, risk aversion, and inadequate monitoring of long-term outcomes. By providing training, technical assistance, and funding, AIM for Scale can help mainstream scaling practices across donors and implementing agencies. By convening partners and brokering agreements, it can align efforts across geographies and value chains. And by rigorously assessing innovations for impact, cost-effectiveness, scaling readiness, and spillover benefits, it can ensure scarce resources are directed toward the most promising opportunities.

Depending on its funding level, AIM for Scale could pursue a spectrum of activities. With modest resources of less than \$10 million annually, we recommend it focus on technical assistance, assessments, and coordination.¹ With moderate funding of \$10–50 million, it should expand to providing grants for mainstreaming and scaling efforts. At higher levels of \$50 million or more, it could evolve into a full vertical fund, directly supporting governments and shaping markets through pooled procurement, co-financing, and results-based financing.

Governance will be critical to AIM for Scale's effectiveness and legitimacy. In the near term, a small board anchored by founding donors, complemented by country, multilateral, and civil society representatives, should guide strategy. Over time, AIM for Scale should transition to a more inclusive, multi-stakeholder approach modeled on successful vertical funds, supported by a lean secretariat and independent technical review mechanisms.

Ultimately, AIM for Scale should act as a catalyst and dealmaker, aligning fragmented efforts, mobilizing new resources, and ensuring that cost-effective innovations reach millions of farmers, improving yields, raising labor productivity, enhancing nutrition, and supporting rural transformation.

INTRODUCTION

The Agricultural Innovation Mechanism for Scale (AIM for Scale) is a new global initiative focused on scaling up high-impact and cost-effective agricultural innovations in low- and middle-income countries (LMICs). This report outlines a business model for AIM for Scale, articulating the rationale, structure, and operational strategy needed to address persistent failures in agricultural innovation scaling. Despite significant investment in agricultural research and development, many innovations fail to reach widespread adoption. AIM for Scale can bridge this gap by identifying high-impact and scalable innovations, supporting country- and region-specific scaling strategies, and improving coordination across the fragmented landscape of funders and implementers. Drawing on lessons from other scaling initiatives, including vertical funds in health, AIM for Scale can increase the impact of limited agricultural development funding on productivity, farmer income, and nutrition, while generating climate and environmental co-benefits.

AIM for Scale was announced at the 28th Conference of the Parties of the United Nations Framework Convention on Climate Change (COP28) by the United Arab Emirates and the Gates Foundation. The idea for AIM for Scale arose from the work of the Innovation Commission for Climate Change, Food Security, and Agriculture, which focuses on identifying the most effective innovations and mechanisms to bring them to scale. With funding from the UAE and the Gates Foundation starting in January 2025, AIM for Scale is continuing the work of the Innovation Commission to identify and scale innovations, initially around advanced weather forecasts and digital advisory services. To create the institutional structure, it drew on lessons from other entities and created an Advisory Panel of researchers working in agricultural development, as well as technical panels with a mix of researchers and implementers for each innovation package. Since it grew organically from the work of the Innovation Commission and discussions around COP28, the funders of AIM for Scale asked for an independent reflection on the AIM for Scale “business model,” including identifying the potential function of and rationale for launching a new organization to scale agriculture innovations and defining the form that would best fit the identified function. This report addresses some of these questions and is divided into two parts. Section I explores whether an institution like AIM for Scale is needed and highlights gaps in the global agricultural development landscape that support its creation. Section II proposes functions, activities, and governance processes for AIM for Scale at different levels of funding.

A woman with dark skin and braided hair is sitting in a field of green plants, possibly a vineyard. She is looking down at a tablet computer she is holding in her hands. The background is a blurred landscape with hills. The image has a dark teal overlay.

SECTION I:

INNOVATION, PRODUCTIVITY, AND EFFECTIVE SCALING

The Global Food and Agriculture Challenge

Progress towards eliminating hunger and malnutrition has stalled in recent years.² Following sharp increases due to COVID-19, global hunger levels have remained stubbornly high: in 2023, an estimated 713–757 million people were undernourished, facing a chronic calorie deficit, including about one in five people in Africa. While notable progress in reducing hunger has been made in recent years in Latin America and the Caribbean, it continues to rise in Africa and remains relatively unchanged in Asia.

Beyond hunger, food insecurity remains a critical challenge. An estimated 2.33 billion people — 28.9% of the global population — were moderately or severely food insecure in 2023, indicating they lacked regular access to adequate food. Critically, food insecurity disproportionately affects rural populations. This means that paradoxically, many farmers and agricultural households, the very people who cultivate the world's food, often struggle with food insecurity themselves.

The world also confronts the “triple burden of malnutrition,” encompassing undernutrition, micronutrient deficiencies, and overweight/obesity. Despite some progress, 148 million children under age five were stunted and 45 million suffered from wasting in 2022. Further, improvements in birthweight have stagnated as rates of anemia in women of childbearing age have increased. Obesity rates have also continued to rise across school-age children, adolescents, and adults. None of the seven global nutrition targets are on track to be reached by 2030.

Though the underlying causes are complex and context-dependent, insufficient income is a root cause of hunger, food insecurity, and malnutrition. Hundreds of millions of farmers operate small labor-intensive plots, produce relatively low-quantity and low-value products, and lack access to markets to profitably sell their goods. The slowdown in global agricultural productivity growth, from 1.9% annually during 2001–2010 to just 0.7% annually during 2013–2022, further compromises the global food supply, slowing growth in farm output, increasing food prices, and ultimately exacerbating poverty and hunger.³

Reversing these trends will require not just developing but also scaling agricultural innovations: enabling the sustained use of technologies, services, organizational methods, and other innovations to have a positive impact on a substantial portion of the hundreds of millions of farmers in low- and middle-income countries.⁴

A Framework for Innovation in Agriculture

Within the food systems world, there is a strong anti-innovation element that believes innovation has led to environmental degradation and poor nutrition and that agricultural productivity growth is no longer central to development. Neither of these arguments is correct. While some widespread agricultural innovations have had environmental tradeoffs — for example, Green Revolution crop varieties required more fertilizer and led to more runoff — their net impact has overwhelmingly been positive.⁵

Innovation remains central to agricultural development and to food systems transformation.⁶ Technologies and other innovations that enable more efficient use of resources can lead to both human prosperity and ecological preservation.⁷ Environmental sustainability and human development are not trade-offs but co-benefits of technological modernization, if institutions actively support innovation diffusion.⁸ By reducing the amount of fuel, fertilizer, and other resources needed to nourish people, productivity-enhancing innovation can substantially reduce greenhouse gas emissions and other environmental impacts.⁹ Likewise, yield-enhancing practices and technologies reduce the amount of land needed, cutting deforestation and putting less pressure on ecosystems. This “land sparing” logic reflects the argument that environmental conservation in developing regions depends not on extensification or subsistence preservation, but on modern inputs and market integration.¹⁰ It also has direct implications for food security and rural income growth, reinforcing the case for supporting innovation systems in agriculture.

Yet agricultural innovation must also evolve. Past efforts often focused narrowly on developing technical interventions to raise staple crop yields. Modern innovation must:

1. **Raise yields** to increase farmer income, reduce food prices, and thereby increase food and nutrition security while also reducing land use
2. **Raise labor productivity** to increase farmer income and free up labor to move to higher-paying jobs in cities and/or in non-farm activities
3. **Improve nutrition** whether through crop diversification, biofortification, or other means

To advance these objectives, the scope of innovation must also extend beyond technology to include social, financial, and institutional innovations. And agricultural innovation organizations must target the farmers and regions most likely to benefit from new technologies as well as to adopt them. As Davis et al. (2024) argue: “Innovations should include biological, technical and social interventions at the farm, market and institutional levels... The ultimate objective needs to be using scarce resources more efficiently for inclusive and sustainable productivity gains.”¹¹

BOX 1: Innovation Case Studies

Drawing from evidence gathered by the Innovation Commission for Climate Change, Food Security, and Agriculture¹², we summarize two examples of innovation that are proven to raise agricultural productivity or income:

Improved weather forecasting: Advances in forecasting technology now allow more accurate short-, medium-, and long-range predictions, including the onset of the monsoon over a month in advance and improved day-ahead forecasts in tropical regions. These forecasts help farmers adjust planting, crop choice, and input use in response to changing weather patterns. In India, upgrading state-level monsoon forecasts to average accuracy could generate over \$3 billion (USD) in benefits for farmers over five years, at a cost of less than \$6 million. In Benin, SMS delivery of forecasts generated \$104–356 in benefits per farmer per year.

Digital agricultural services: Digital advisory systems use mobile phones to deliver timely, science-based information on weather, pests, seeds, soil, and markets. They can also amplify the reach and effectiveness of in-person extension staff, foster peer-to-peer learning among farmers, and strengthen market linkages by connecting producers with input suppliers, cooperatives, contract farming schemes, and buyers. Rising smartphone ownership enables more sophisticated services such as video demonstrations or diagnosing pests using photos. In East Africa, farmers receiving soil chemistry information by SMS were 22% more likely to use agricultural lime and applied fertilizer more appropriately, with benefits exceeding costs nine to one. In Odisha, India, a public digital extension service — developed in partnership with an NGO — now reaches more than 6 million farmers, showing the potential for pilot programs to be scaled nationally through government adoption.

Innovation without Adoption

Addressing the interconnected challenges of food and nutrition security, rural poverty, and environmental sustainability necessitates profound innovation within agricultural systems.^{13,14}

However, despite the development of a wide range of effective agricultural technologies and practices, a significant and persistent gap exists between their potential and their widespread adoption and impact at scale.¹⁵ This scaling gap is particularly pronounced among farmers in developing regions, notably sub-Saharan Africa and South Asia, where most of the world's food-insecure population resides. While East Asia experienced remarkable sixfold increases in crop yields over four decades, contributing significantly to poverty reduction, yields have only doubled in sub-Saharan Africa and tripled in South Asia, with correspondingly disappointing progress on poverty.¹⁶

Investments in agricultural R&D and broader agricultural development assistance often do not generate tangible, widespread improvements in productivity and livelihoods. Examples abound of

potentially transformative innovations — from improved seeds and sustainable land management techniques to automatic milking systems and digital advisory tools — that remain confined to pilot projects or limited geographical areas, failing to reach the millions who could benefit. This is partially because agricultural innovation is heavily directed toward conditions common in high-income countries, with limited applicability to agriculture in lower-income countries.¹⁷ However, even seemingly simple practices like minimum tillage farming encounter slow uptake, limited by inadequate extension support, trade-offs like increased herbicide costs, and uneven benefits to farmers who implement them.¹⁸ The mere existence of effective innovations and of funding — whether from government, official development assistance (ODA), or otherwise — is insufficient to guarantee widespread use and impact.

Development and adoption of some agricultural innovations is also below the socially optimal level, particularly where they generate large spillover benefits or non-excludable public goods. Examples include pest management technologies that reduce weed or pest pressure or pesticide drift, biofortified crops that improve population-level nutrition, or advanced weather forecasts provided by government agencies for entire communities. In such cases, farmers may lack sufficient private incentive to adopt even when the broader societal gains are high. These dynamics underscore the need for public or philanthropic support to accelerate adoption, whether through direct procurement, investment in the enabling infrastructure, or other strategies that allow such innovations to be widely used.

What is Scaling?

At its core, *scaling* in agriculture aims to increase the uptake of specific innovations to address development problems, such as food security and rural poverty, significantly and on a sustained basis.¹⁹ This goes beyond the traditional project-focused approach that too often narrowly focuses on increasing adoption of practices or technologies in the short term and in a limited geography. In theory, maximizing adoption of a particular farming technology, like a novel soil management practice, can occur without pulling a single farmer out of agrarian poverty or otherwise meeting key development objectives. Rather, effective scaling focuses on the key outcomes of interest, such as change in net farm income, food insecurity, and off-farm employment in a region.

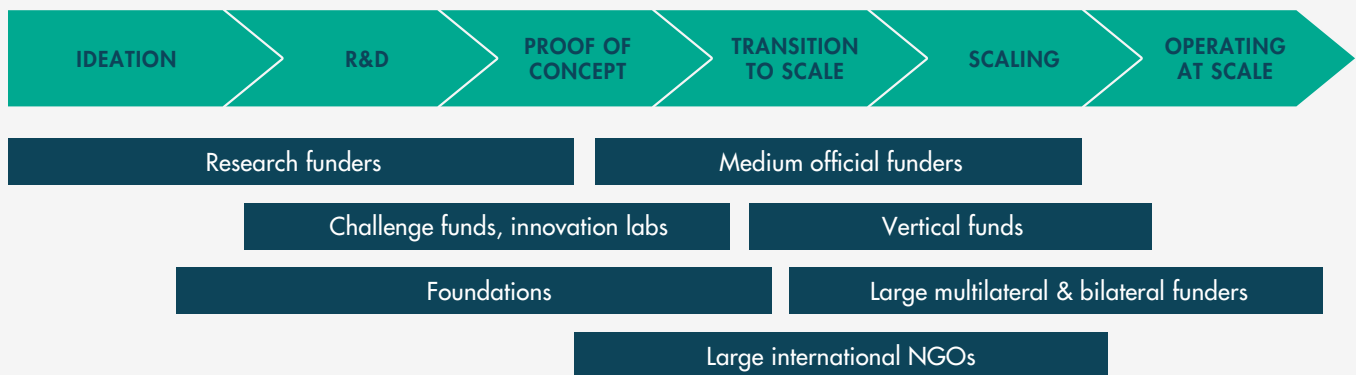
Scaling can be *transformational*, reshaping systems and enabling conditions, such as national policy or markets, to unlock new pathways for growth. Or it can be *transactional*, focusing on grant-, loan-, or other resource-driven expansion of proven solutions. Similarly, scaling may proceed *horizontally*, replicating innovations across regions, sectors, or organizations, or *vertically*, deepening capabilities within existing structures — like moving from pilot projects to full integration in national programs.

Regardless of the approach, effective scaling typically follows several principles and best practices. The Scaling Community of Practice has identified several of these principles based on existing scaling frameworks, case studies, and experience.²⁰ These include:

1. **Define a vision of scale:** A successful scaling effort begins with a clear, context-specific, and participatory vision of the problem to address, the pathway to scaling, and the impacts of the innovation when optimally scaled. This vision should identify the stakeholders, including who will benefit, what systems will be affected, whether there is demand for the innovation, who will drive the scaling process, and how trade-offs will be managed, particularly regarding equity.
2. **Specify what to scale:** Focus on the core elements of an intervention that are essential to its success while allowing for contextual adaptation. Assess whether the intervention is scalable, based on evidence of impact, feasibility, and cost-effectiveness. Achieving broad-scale results often requires complementary interventions or *innovation packages* such as improved seed combined with increased access to fertilizer and advisory services.
3. **Engage and coordinate scaling actors:** Diverse, multi-stakeholder alliances in innovation and implementation enhance the relevance and sustainability of solutions, in part by pooling complementary strengths across research, policy, finance, and other domains. Such cooperation boosts resource efficiency, partner capacity, and sustainable development outcomes by addressing complex challenges beyond any single actor's reach.²¹ It also helps tailor implementation to local realities to achieve lasting impact. It is therefore critical to identify and coordinate the organizations and individuals best positioned to play the following key roles:
 - a. **Leaders:** Individuals or institutions that champion the scaling effort, make decisions, commit resources, and sustain momentum over time.
 - b. **Intermediaries or facilitators:** Organizations with the capacity to coordinate scaling activities across sectors and actors. They help align strategies, manage partnerships, build capacity, and monitor progress. Effective intermediaries are often local and contextually embedded.
 - c. **Partners:** Public, private, and civil society organizations that contribute knowledge, resources, legitimacy, and access to local systems to reach larger and more diverse populations.

- d. **Public and private actors:** Entities that shape the enabling environment for scaling, including governments and businesses. Their actions must be coordinated and mutually reinforcing.
4. **Plan for systemic opportunities, constraints, and risks:** Identify institutional, financial, political, and social enabling factors and constraints early. Barriers that hinder the adoption of new technologies by farmers include, but are not limited to, a lack of access to credit, reliable information, and quality inputs, as well as constraints on business expansion like land tenure issues and gender inequalities. Poor rural infrastructure, insufficient market infrastructure, and weak regulatory frameworks in developing countries further impede access to and adoption of improved technologies.²² Design the intervention to align with existing systems or include strategies to address barriers. One of the largest constraints is often financing and cost. Therefore, it is critical to identify a viable business or funding model, drawing on cost-benefit calculations and consideration of how affordable the innovation is to users.
 5. **Develop a scaling strategy:** Create a participatory and phased scaling strategy that links the vision to a practical, locally tailored implementation plan. The strategy should anticipate constraints, incorporate flexibility, and evolve based on feedback.
 6. **Mobilize resources and demand:** Secure the financial, human, and institutional resources necessary to scale. Address both supply- and demand-side dynamics, using incentives, advocacy, education, marketing, and other outreach to build support and shift norms.
 7. **Adapt and iterate:** Use continuous feedback, learning, and adaptation to respond to challenges and emerging realities. Sustainable scaling often requires long-term engagement and resources and adjustments to vision, strategy, and operations.
 8. **Ground decisions in evidence:** Base all scaling decisions on rigorous and relevant evidence and on continuous learning. Collect and use qualitative and quantitative evidence by monitoring outcomes, evaluating performance, and adjusting strategies to ensure relevance and effectiveness.

FIGURE 1. The role of funders in the stages of scaling



Source: Adapted from Cooley, L., & Linn, J. F. (2024, November). Scaling fundamentals: A framework for understanding and managing the scaling process. Scaling Community of Practice.

Gaps in the Agricultural Scaling Ecosystem

A growing number of international and global development organizations working in agriculture have publicly committed to prioritize scaling (see Appendix 2). Despite this commitment and rising awareness of what effective scaling entails, the agricultural development community still falls short of consistently applying established principles and best practices. We describe the most prominent gaps below, grouped into three categories, based on a review of the literature and on our assessment of how existing efforts align with best practices for scaling:

1. **Lack of mainstreaming scaling *within* organizations:** For most funders and implementers, scaling remains peripheral rather than core to their strategy. While some organizations reference scaling in vision statements or results frameworks, few have fully integrated it into decision-making, operations, or performance systems. As a result, scaling efforts are often ad hoc, opportunistic, or disconnected from strategic goals. Specific gaps in organizations' efforts and capacity to scale include:
 - a. **Scaling is nobody's job:** Staff incentives within funder organizations often reward innovation, complexity, and novelty in project design rather than the ability to support scale, replication, or sustainability. In addition, few organizations have staff who specialize in scaling or dedicated budgets.²³
 - b. **Focus on "pilots to nowhere":** Funders remain focused on short-term (2–4-year), one-off projects that are "pilots to nowhere" and generate small-scale successes but lack pathways to long-term adoption. These projects emphasize delivery of immediate

results, such as adoption of a practice by thousands of farmers, but often lack a vision or mechanism for sustaining and expanding impact beyond the project lifecycle in order to reach millions. This approach discourages long-term investment in systems, partnerships, and conditions necessary for scale.^{24,25}

- c. **Weak management of systemic opportunities and constraints:** Organizations often do not sufficiently consider how policies, markets, and other systems will enable or hinder specific innovations from scaling. Where these systemic constraints must be addressed, scaling efforts often lack the substantial investment needed to shift the policy, institutional, and market conditions. While many large funders, such as GIZ and the World Bank, support policy and other systems change, they rarely align these investments with the scaling needs of innovations.
- d. **Risk aversion and awareness:** Funder organizations often reward staff for demonstrating project cost-effectiveness and avoiding failure, deterring them from incorporating new innovations into projects or pursuing ambitious pathways to scale. Staff also face reputational and professional costs if novel approaches fail, reinforcing their conservatism. Risk aversion also contributes to the structural bias toward piloting over scaling. At the same time, funders and implementing partners struggle to incorporate many innovations into projects because government agencies and communities typically must propose or approve their use. Yet many are either unaware of these technologies or too risk-averse to endorse them.²⁶
- e. **Unfunded scaling mandates:** While many organizations support innovation, they often lack dedicated teams or resources to prepare innovations for scale.²⁷ Where organizations have sought to mainstream scaling, such as at CGIAR, it often comes as an added requirement without dedicated financial or technical support. Staff tasked with integrating scaling are frequently under-resourced and already managing multiple unfunded mandates (e.g., gender, climate, anti-corruption), leading to limited implementation.
- f. **Inadequate monitoring and evaluation for scaling:** Project monitoring and evaluation systems primarily assess outputs and short-term outcomes — such as the number of people reached during a project's period — rather than the long-term sustainability of adoption of innovations. They rarely gather data on contextual factors, enabling conditions, or pathways to scale, nor do they support iterative learning and adaptation for scaling efforts.

2. **Lack of coordination across organizations and regions:** Effective scaling requires coordination across multiple types of actors, including organizations that will lead the scaling effort (e.g., to increase adoption of new seeds), partners that provide knowledge and resources (e.g., funders), and public or private sector partners needed to create an enabling environment (e.g., streamlining testing and approval). Gaps in this coordination include:
- a. **Fragmented funding:** Funding is often dispersed, supporting many smaller unconnected projects, due to the wide number of funders and the constraints on funding created by their diverse institutional mandates.²⁸ Funders working on similar efforts or topics also often fail to communicate, leading to duplicative efforts, siloed reporting systems, and missed opportunities for alignment and learning.²⁹
 - b. **Limited national alignment:** Donors, particularly multilaterals, often partner with national governments. Yet they frequently do not address the financial, institutional, and capacity constraints that impede long-term adoption and ownership of projects by governments or local actors. This limits the likelihood that interventions will be scaled or sustained by domestic institutions.
 - c. **Assessing innovations across organizations:** Several organizations, such as CGIAR and the World Food Programme (WFP), assess the scaling readiness of innovations they have developed in order to inform their investments and projects. However, there is little coordinated assessment of innovations developed by multiple organizations to inform project development and funding prioritization. In addition, many innovations are not rigorously evaluated for their impact and cost-effectiveness, and the evaluations that are conducted rarely assess whether there are credible pathways to scale. FAO's Office of Innovation and their Agrifood Systems Technologies and Innovations Outlook (ATIO) aim to address the lack of sufficiently "representative high-quality data and scientifically vetted analyses across the agrifood system, along the STI [science, technology, and innovation] life cycle to support informed decision-making."³⁰ However, ATIO is still under development, is relatively small, and — rather than assessing innovations themselves — is planning on federating or connecting existing knowledge bases that several organizations have created to improve access to information about innovations at the global level.³¹
 - d. **Poor innovation hand-off:** Even where innovations are assessed for their scaling readiness, there is often little systematic coordination between large organizations' funding units and their innovation units and even less with external innovation organizations such as CGIAR. While smaller funders lack the capacity to independently

take innovations to scale, larger funders often lack the systematic processes to develop long-term programs and partnerships needed to scale innovations from smaller entities. The lack of a clear pathway and responsibility for scaling leaves many promising innovations stuck at a limited scale.³²

3. **Lack of external resources:** Organizations often encounter significant external constraints in attempting to scale agricultural innovations, including insufficient funding and a lack of robust data to support evidence-based scaling pathways.
 - a. **Limited funding:** Government, private, and ODA support for agricultural development in general and innovation scaling in particular is insufficient (see Appendix 1). While much more can be done with existing funds, many organizations struggle to establish new scaling efforts without additional support.³³
 - b. **Data on evidence-based scaling:** Crucial information for assessing the scaling readiness of an innovation, such as fixed and variable costs, potential pricing, and potential revenue, is often incomplete or missing. The absence of comprehensive data on costs and often on impacts for target populations prevents well-informed decision-making. This leads to unrealistic expectations about how scaling happens and ultimately ineffective investments and projects.³⁴
 - c. **Few scaling institutions (“intermediaries”):** Though donors have recently launched a variety of new innovation efforts, such as the WFP Innovation Accelerator, there remain few institutions focused on taking innovations to scale. The World Economic Forum (WEF) Food Innovation Hubs Global Initiative provides a potential model to establish such institutions, which benefit from local expertise. However, these remain nascent and are limited in number, scope, and capacity (see Appendix 2).

The breadth of these gaps underscores that existing institutions must move beyond rhetorical commitments and embed scaling best practices into their core strategies and operations. Yet institutional reforms alone will be insufficient. Dedicated funding mechanisms, targeted initiatives, and new organizations — such as AIM for Scale — are also needed to address coordination failures, build capacity, and mobilize resources for scaling. In particular, intermediaries can play a catalytic role by aligning fragmented efforts, ensuring rigorous assessment of innovations, and developing investment packages that connect evidence-based solutions to pathways for long-term adoption. Section II explores how AIM for Scale could be structured to fill this role and overcome the barriers outlined above.

A person with dark hair and a beard, wearing a green t-shirt, is shown from the side, holding a black drone controller. In the background, a small drone is flying in a clear blue sky. The overall image has a dark, teal-colored overlay.

SECTION II:

AIM FOR SCALE: FUNCTIONS, ACTIVITIES, AND GOVERNANCE PROCESSES

Potential AIM for Scale Functions

A new organization with a global focus on scaling agricultural innovations, such as AIM for Scale, could provide several functions to address current gaps in the institutional ecosystem:

Support mainstreaming

- I Training:** CGIAR has found training programs to be effective internally at improving staff incorporation of scaling best practices in projects. AIM for Scale could provide training in scaling science and implementation to program officers, managers, or other staff across donor organizations and international financial institutions. Training programs should actively seek participation from “students” that represent core organizations, offices, and/or geographies rather than passively being open to anyone who wants to join.³⁵ AIM for Scale could also support efforts across organizations to hire needed experts for scaling efforts, such as innovation system analysts, regulatory and policy experts, or business development specialists.
- I Technical assistance:** Individuals trained in scaling cannot effectively advance scaling efforts if their organization does not provide an enabling environment with the capacity to support scaling.³⁶ To build organizational capacity, AIM for Scale could provide technical assistance to funder organizations and/or national agricultural ministries to improve their scaling capabilities. This could include embedding scaling staff temporarily in funders’ program or project teams as well as developing resources such as scaling roadmaps and tools for assessment and monitoring.
- I Provide funding:** Organizations with scaling goals, processes, resources, and trained staff still require a budget to effectively mainstream scaling. To address this, AIM for Scale could provide funding to support initial mainstreaming efforts. To be most cost-effective, this should be temporary support that ramps down over a short time scale (e.g., 1–3 years) with a commitment from donors that they will use existing funds to ramp up their budget for scaling.
- I Monitoring, Evaluation, and Learning (MEL):** AIM for Scale could develop a centralized MEL system that monitors scaling progress across multiple organizations and regions, whether focused on one innovation area or multiple areas.
- I Advocacy:** External pressure can spur donors, governments, banks, and implementers to adopt new practices, including scaling best practices. In addition to providing direct support, AIM for Scale could educate other institutions about the science of scaling and advocate for them to mainstream best practices into their strategies and operations.

Coordination

- Coordinate mainstreaming:** Agricultural development organizations work within value chains and networks that include other organizations. Even if one organization embraces the principles of scaling and has the requisite staff, resources, and funding, its efforts to bring innovations to scale may hit a bottleneck if the other organizations in its network have not mainstreamed scaling.³⁷ To address this, AIM for Scale could take a network-level approach, seeking to reach key actors in specific value chains or geographies with training, technical assistance, and other support.
- Facilitate funding:** To address coordination failures, AIM for Scale could convene funders and other potential stakeholders of a scaling effort to help secure funding for key organizations. AIM for Scale should consider how to coordinate any brokering with other efforts such as FAO's Hand-in-Hand Investment Forums (see Appendix 2). Incorporating scaling proposals into existing funder forums may be more cost-effective than developing new convenings.
- Facilitate scaling networks:** It is generally recommended for scaling efforts to include an organization that facilitates the efforts, engaging all other actors involved, providing supporting services to them, brokering partnerships and agreements, and “hustling and hassling” organizations to ensure they follow through on agreements.³⁸ However, scaling efforts often do not include such actors.³⁹ Although AIM for Scale could play the role of a facilitator, doing so only at the global level is likely insufficient. It is beneficial for facilitators to understand the local context, such as organizations and politics. AIM for Scale could therefore develop country or region teams, affiliates, or committees similar to how HarvestPlus has developed country-specific offices and projects. Alternatively, it could provide resources, technical assistance, seed funding, and other support for organizations in different regions to play a facilitator role, similar to WEF's approach through their Food Innovation Hubs Global Initiative.

Develop scaling visions and strategies

- Assess innovations:** AIM for Scale could leverage scientific, financial, policy, local, and other relevant expertise to assess the scaling readiness and potential impact of different innovations. In doing so, the Secretariat should develop assessment criteria and processes in consultation with stakeholders such as partner organizations and external experts in the science of scaling. The criteria used by existing assessment frameworks such as Scaling Readiness should be considered, such as: a) rigorous evidence that an innovation achieves a particular outcome in the context in which it is to be scaled; b) relevance of the innovation's

impacts to the needs of potential adopters; c) cost-effectiveness or cost-benefit; d) a credible pathway to more widespread use, which can include evidence of demand, potential delivery channels at scale, and a pathway to financial sustainability whether through private markets, public provision or public-private partnerships; and e) feasibility of addressing bottlenecks to scaling such as weak markets, missing infrastructure, or prohibitive regulations.^{40,41}

In assessing innovations, AIM for Scale could take an outcome-oriented approach, seeking to identify innovations that will best achieve chosen outcomes in different contexts rather than narrowing its assessment to the commodities or innovations where partner organizations have the most expertise.⁴²

- Define scaling strategies:** Based on assessments of scaling readiness, AIM for Scale could identify what to scale, define a vision for scaling, identify strategies for scaling, and then co-create full proposals with funders, ensuring alignment with their priorities and increasing support. This would help address challenges of fragmented funding, funder inefficiencies, and limited national alignment.

Funding

- Grant-making:** If sufficiently funded, AIM for Scale could provide funding to networks of actors needed to support scaling. Given that financial support in agricultural development is disproportionately provided through loans compared to several sectors such as health, AIM for Scale's funding ideally would be provided as complementary grants or blended with loans from other funders.⁴³ To be effective, AIM for Scale's funding should be provided for longer than the typical short project duration, instead providing long-term support through a program approach to development, rather than a project approach, shifting, ramping down, or canceling support as needed based on how effectively an innovation is being scaled.
- Market shaping:** Various efforts, such as WFP's Innovation Accelerator, illustrate that establishing clear market demand is critical for scaling innovations. However, with the existing priorities of many multilaterals and the limited scale of AgResults — a donor-funded initiative that uses prize competitions to incentivize innovation and scale-up — there is relatively little support for such market shaping. If AIM for Scale grows into a funder organization, it should assess the effectiveness of the AgResults initiative and consider whether to provide a portion of its funds through a pay-for-results grant or loan, advanced market commitment, or prize mechanism. In theory, this could help address market failures where startups and other private actors currently view there being insufficient demand. In practice, however, the efficacy depends on implementation.

Learning from Vertical Funds in Health

Two health-sector funds are especially relevant to AIM for Scale, as both were created to scale proven innovations: the **Affordable Medicines Facility—malaria (AMFm)** expanded access to effective antimalarial drugs, while **Gavi, the Vaccine Alliance**, scaled vaccine delivery in low-income countries.

AMFm was a global financing mechanism launched in 2010 by the Global Fund in collaboration with the World Bank, UN agencies, and the Roll Back Malaria Partnership to increase access to effective antimalarial drugs. AMFm's goal was to dramatically expand access to artemisinin-based combination therapies (ACTs) — the most effective treatment for *Plasmodium falciparum* malaria — especially in low- and middle-income countries, by making them more affordable and more available in the private sector.

AMFm worked through four primary channels:

1. **Factory-Gate Subsidies:** AMFm paid a large portion of the ACT cost directly to manufacturers. This reduced prices by up to 90% before the drugs reached local markets.
2. **Private and Public Sector Access:** Unlike most aid programs, AMFm supported both public clinics and private pharmacies, where many patients go for treatment.
3. **Branding and Public Awareness:** Subsidized ACTs were branded with a green leaf logo and came in distinctive packaging to promote recognition and trust.
4. **Supporting Measures:** AMFm supported education campaigns for healthcare providers and patients and conducted monitoring and evaluation of drug quality, price, and availability.

AMFm was piloted in 8 countries: Cambodia, Ghana, Kenya, Madagascar, Niger, Nigeria, Tanzania, and Uganda. During its operation, AMFm increased availability of ACTs in pharmacies and drug shops, reduced prices for patients (as low as \$0.50 per course), and boosted market share of quality-assured ACTs, displacing older and less effective treatments. After the AMFm pilot ended in 2012, its subsidy approach was integrated into the Global Fund's regular grant model, continuing under "co-payment mechanisms" in some countries.

The program's long-term effectiveness and limitations provide a valuable lesson for AIM for Scale. A study from the Center for Global Development (CGD) examined whether gains in the availability, market share, and quality of ACTs persisted in Kenya's private sector after the AMFm and co-payments ended.⁴⁴ Using Point-of-Sale (PoS) data from about 250 private pharmacies/clinics (2017–2019), collected via a digital system and Indian export data on ACT supply to Kenya as cross-validation, the CGD study looked at the long-term impact of AMFm. It found that AMFm led to a

meaningful and enduring increase in ACT adoption within Kenya's private sector, with a lasting shift away from older therapies. However, after subsidies stopped, use of WHO-prequalified ACTs (a marker of drug quality) deteriorated, retail prices rose, and use of rapid diagnostic tests for malaria remained low, indicating continued issues with inappropriate anti-malarial prescriptions for non-malarial fevers. Pairing financial interventions with complementary incentives or policies to sustain quality control, increase affordability, and address case management would likely have improved the program's long-term impact.

Gavi is a public-private partnership that launched in 2000 to increase access to immunization in the world's poorest countries. Gavi pools funding from donor governments and private foundations to lower the cost and expand coverage of vaccines for measles, polio, and other diseases. It does so by aggregating demand, shaping markets, and co-financing national programs. Since inception, Gavi reports supporting vaccinations for over 1.1 billion children and averting over 18 million deaths.

Gavi works through several channels, including:

- **Pooled procurement and advance market commitments.** Gavi pools financing and procurement, increasing supplier competition and lowering prices. It also pioneered the use of advance market commitments (AMCs), which guarantee vaccine makers a predictable market if they develop products meeting agreed standards for cost, efficacy, and suitability in low-income settings. The most notable example was the 2009 pneumococcal AMC, a \$1.5 billion commitment backed by donor governments and the Gates Foundation. This mechanism gave manufacturers confidence to expand production and tailor vaccines for low-resource settings, accelerating their introduction in poor countries. The AMC reduced prices by more than 90% compared to high-income markets and shortened the lag in access from more than a decade to just a few years.
- **Co-financing and transition.** Countries pay a rising share of vaccine costs as incomes grow, working with Gavi through three phases. In the Initial Self-Financing phase, countries with gross national income (GNI) per capita below the World Bank's low-income threshold contribute \$0.20 per dose. Countries with GNI per capita above this level but below Gavi's eligibility threshold fall under the Preparatory Transition phase, increasing their co-financing by 15% per year. Countries enter the Accelerated Transition phase once their three-year average GNI per capita exceeds Gavi's eligibility threshold, and their co-financing share has reached at least 35%. In this phase, countries increase their financing over eight years to cover 100% of the cost. This co-financing model fosters national ownership and promotes long-term sustainability of immunization programs. Nineteen countries have transitioned from Gavi support to fully finance their immunization programs, with some, like India and Indonesia, now donating to Gavi.

I Investment in enabling systems: Gavi funds vaccine delivery enablers, including cold chain equipment, logistics systems, data tracking, and healthcare worker training. These improvements help not only with vaccine campaigns but also with broader health service delivery, including maternal and childcare.

Gavi has substantially expanded access to vaccines in low-income countries. For example, coverage for the DTP3 (diphtheria-tetanus-pertussis) vaccine rose from about 66% in 2000 to over 80% in Gavi-supported countries. Average coverage for key Gavi-supported vaccines increased from 48% in 2019 to 56% in 2022, exceeding the global average of 53%. Gavi has driven steep price reductions as well, helping reduce the cost of fully immunizing a child in low-income countries by 25% from 2013 to 2024. For example, the price per dose of the HPV vaccine declined from \$4.50 in 2015 to \$2.90 in 2022. Gavi has also shortened the lag between vaccine introduction in high- and low-income countries. The pentavalent vaccine, for instance, reached low-income countries within years of its rollout in high-income countries, compared to the decades such diffusion once took.

Several **lessons for AIM for Scale** can be drawn from AMFm and Gavi's experience. Aggregating demand through long-term, rules-based contracts can expand supply, lower prices, and accelerate adoption of new technologies. However, pooled and subsidized procurement alone is not enough. As illustrated by the backsliding following AMFm's completion and the success of Gavi's efforts, complementary changes in policy and investments in enabling conditions — such as last-mile logistics, workforce capacity, and data systems — are critical to sustaining low prices and ensuring they result in sustained, widespread use.

Though the health and agricultural sectors are substantially different, this is nevertheless an important lesson for AIM for Scale. Many of the agricultural innovations it may support require reliable and affordable private industries (e.g., seed producers, outgrowers, processors, and distributors) to sustain long-term adoption as well as robust public infrastructure (e.g., roadways and extension services). Gavi's model of gradually increasing countries' co-financing requirements for vaccine procurement also underscores the value of clear transition plans in which partners progressively assume greater responsibility, paired with safeguards to prevent backsliding after external support ends.

A common critique of vertical funds is that while they generate tangible benefits, they do not fix or improve underlying systems. Yet the lesson from health is that these approaches are complementary, not mutually exclusive. Scaling discrete innovations can improve lives in the near term while also generating the institutional learning and demand needed for durable system improvements. AIM for Scale should adopt the same stance for agriculture: invest in evidence-based, scalable innovations while sharing lessons learned from its efforts that reveal bottlenecks and help identify priorities for broader reforms.

AIM for Scale Activities

A new institution focused exclusively on scaling agricultural innovations could help fill key gaps and complement existing efforts by providing several of the functions outlined above. However, their design and scope must be carefully structured to avoid fragmentation, resource competition, and duplication and to ensure effectiveness within a constrained budget. AIM for Scale could pursue one of several strategic approaches, each requiring different levels of funding, expertise, and institutional capacity.

With a **minimal amount of funding** (e.g., less than \$10 million per year) and a lack of certainty about future funding, AIM for Scale could effectively:

- Provide technical assistance and staff training to help funder organizations and/or national ministries mainstream scaling.
- Assess innovations, define scaling strategies, and facilitate funding and scaling for a limited set of geographies or innovations (e.g., one or two per year). This could include evaluating the cost-effectiveness, scalability, and other criteria of a limited set of innovations; developing a scaling strategy; convening funders to refine and support the strategy; and coordinating organizations involved in the scaling effort, such as by brokering partnerships and offering support services. This is similar to AIM for Scale's current operations. At higher levels of funding (e.g., \$5–10 million per year), AIM for Scale could hire consultants for fieldwork to support scaling initiatives.

With **moderate funding** (e.g., \$10–50 million per year), AIM for Scale could conduct the following activities in addition to those listed above, with its geographic reach and breadth of activities and innovation areas proportionate to funding:

- Provide grants to organizations to support mainstreaming (e.g., to incorporate scaling criteria into MEL systems, develop an internal training program, or convene a regional scaling network).
- Provide grants or contracts to directly support scaling innovations. For example, this could include providing grants to develop AI-supported weather forecast systems for specific countries or to develop training and educational materials about using a specific innovation.
- Contract or hire regional experts to develop more geographically refined innovation assessments and scaling strategies, e.g., separate strategies for different countries.

With a **large budget** (e.g., over \$50 million per year) — which would require a longer time scale to fund, develop strategies around, and hire staff for — AIM for Scale could provide the above services and also act as a full vertical fund to directly fund scaling activities. Learning from the experience of other vertical funds like Gavi, AIM for Scale could:

- Directly support government scaling efforts through a co-financing model, modeled on Gavi's approach to vaccine procurement. Under this system, AIM for Scale would subsidize a significant share of the cost of procuring and/or distributing agricultural innovations that meet strict cost-effectiveness and scalability thresholds (e.g., digital advisory platforms). Governments would contribute a defined co-payment, while AIM for Scale covers the remaining cost, with procurement conducted competitively through national systems or pooled arrangements. Over time, AIM for Scale's share would ideally taper as governments increase their contributions, following the lesson from Gavi's graduation policies that sustainability depends on gradually shifting fiscal responsibility to national budgets.
- Expand the supply of an innovation and lower prices through pooled procurement and advance market commitments (AMCs). While co-financing helps governments afford innovations, pooled procurement and AMCs complement this by reshaping the market itself — aggregating demand across countries, setting minimum product standards, and reducing prices by guaranteeing manufacturers predictable volumes. Because such mechanisms are capital-intensive, AIM for Scale would likely need to co-finance or backstop them with partners (e.g., foundations, MDBs, or donor consortia). Large AMCs have reached the billion-dollar scale (e.g., Gavi's pneumococcal AMC), so AIM for Scale's role could range from anchor funder to convener/technical lead assembling the co-funding. As with past successful efforts, any AMC should have a clear, publicly communicated time frame and be designed to spur a scale-up of supply that would otherwise be too risky or unprofitable.
- Finance the enabling systems and institutions required for effective scale-up through grants, concessional loans, or blended finance. These may include last-mile logistics, early-generation seed production and certification, extension or digital advisory services, regulatory streamlining and standards, dealer/service-provider networks, workforce training, and monitoring/verification systems. By addressing these systemic bottlenecks, AIM for Scale would complement direct procurement support, market-shaping instruments, and other scaling initiatives.
- Use results-based financing (RBF), such as outcome contracts that disburse only after independent verification. Compared to AMCs, RBF is typically more feasible at smaller budgets (e.g., tens of millions) and better suited to tackling demand- and service-side barriers

such as farmer uptake, correct use, or dealer/distributor coverage. Any RBF approach should be informed by a careful assessment of the AgResults initiative and consideration of whether to co-fund a dedicated AIM for Scale window within AgResults. A results-based payment approach would generally involve (i) setting and defining outcomes (e.g., hectares adopted or reached, verified yield gains); (ii) setting payment rates per unit outcome; (iii) co-financing an outcome fund with donors and MDBs to achieve multi-country scale while enabling pre-financing so implementers have working capital; and (iv) establishing robust yet cost-effective MRV systems.

Figure 2 illustrates these three options for the functioning of AIM for Scale. Given that AIM for Scale's current budget is in the minimal range but could realistically expand to the moderate range within several years, we recommend that AIM for Scale pursue a mix of technical assistance to support mainstreaming of scaling in other organizations, assessment of innovations, and facilitation/brokering of funding to scale innovations. This approach would allow AIM for Scale to translate scientific, economic, behavioral, market, and political insights into fundable, scaling-ready packages tailored to the interests of specific donors. With growing donor interest in both mainstreaming scaling and backing cost-effective innovations, AIM for Scale could add value by subsidizing a “project preparation” function and actively matching innovations with financing. In doing so, it would serve as a dealmaker — helping to overcome coordination failures among existing institutions, governments, and stakeholders, and unlocking significant resources for highly cost-effective interventions.

FIGURE 2. AIM for Scale options for functions and activities



How AIM for Scale Should Prioritize Innovation

To maximize its impact on yields, labor productivity, and nutrition, AIM for Scale should focus on innovations that meet several key criteria. These criteria are not listed in order of importance.

- 1. Diversify beyond staple yields:** While increasing staple crop yields remains important for reducing undernourishment, other efforts are needed to reduce other forms of malnutrition and to bolster farmer income. AIM for Scale should address these concerns, such as by supporting innovations that increase yields of more nutrient-dense crops, enhance the nutrient content of staple crops (biofortification), and expand farmers' access to new markets.
- 2. Support rural economic transformation:** AIM for Scale should support innovations that not only improve farm outcomes but also expand non-farm opportunities. Strengthening value chains and increasing non-farm opportunities is crucial for the 400 million small-scale producers who farm less than 1 hectare of land.⁴⁵ While most smallholder households globally earn a large share of their income from non-farm activities, a substantial proportion, particularly the poorest in sub-Saharan Africa, still heavily rely on on-farm activities for their income and would benefit from increased access to non-farm rural income sources.⁴⁶ This does not necessarily mean, however, that AIM for Scale and other innovation institutions should focus on very small producers. Rather, the diversification of rural income is often driven by across-the-board land and labor productivity gains in agriculture, which also induces growth in non-farm activities. In sub-Saharan Africa, where investments in agricultural productivity have not spurred the expected labor surplus and structural transformation, more investment in creating non-agricultural job opportunities and consolidating farmland may be needed.⁴⁷
- 3. Target farmers with productive potential:** AIM for Scale should target innovations toward farmers who not only will greatly benefit from them but also have the capacity to adopt them widely. This is, in part, determined by farm size. Approximately 82% of farms in low- and lower-middle-income countries are under 2 hectares, accounting for about 36% of the agricultural land.⁴⁸ Farms between 2 and 10 hectares make up most of the rest (40% of the land), comprising the majority of land in many low- and lower-middle-income countries such as the United Republic of Tanzania, the Philippines, and Zambia. Farms between 2 and 10 hectares tend to be less labor-intensive than smaller farms, have greater technical efficiency, and produce more crop calories per hectare by some measures.^{49,50} In most cases, the returns to innovation in agriculture are higher for these types of farms. Farm size has a significant and positive effect on the adoption of a range of agricultural technologies, including improved crop varieties, chemical inputs, and farm machinery.⁵¹ Farms between 2 and 10 hectares typically have better access to agricultural inputs, credit, extension services, and markets and benefit from economies of scale that enable

them to purchase inputs with high upfront costs that can be prohibitive for the smallest farms. In addition, the growth of farms in this range often creates positive externalities for smaller farmers, such as opportunities to provide inputs as well as new non-farm income opportunities.⁵²

4. Target farmers and interventions with high adoption readiness and additionality: Going beyond farm size, AIM for Scale should prioritize interventions where the conditions for adoption already exist. This means focusing on farmers who have the inputs, infrastructure, and skills required to use an innovation, and on technologies that can be integrated into existing systems. Key questions include: Do farmers have access to phones or digital platforms to receive services? Do they have irrigation equipment or other infrastructure the innovation requires? Are there sufficient training or extension services to enable use of the innovation? By targeting contexts with high readiness, AIM for Scale can reduce adoption barriers, accelerate uptake, and avoid investing in technologies unlikely to be used. At the same time, AIM for Scale should be guided by the principle of additionality, avoiding innovations that would scale at a comparable speed and level without its intervention.

5. Target farmers with high market access: AIM for Scale should target regions where farmers not only can access and make use of innovations but also have a reasonably good chance of bringing any increased farm output to market. Interventions are far more likely to be successful if farmers have access to markets. Infrastructure such as roads and electricity is key to ensuring market access and thereby providing farmers with sufficient incentive to invest in productivity growth. Interventions are likely to fail in the absence of basic infrastructure. As Calestous Juma wrote:

“Africa’s low agricultural productivity levels stem in part from inadequate roads, energy supply, and irrigation. Without rural roads, farmers are condemned to growing crops close to their homes, and as a result can hardly provide adequate food for themselves, let alone surpluses for local trade. Compared with 60% of rural people in middle-income countries around the world, only 44% of rural Kenyans live within two kilometers of an all-season road.”

6. Target public goods and positive spillovers: Many agricultural innovations justify public or philanthropic support because they generate non-excludable benefits (e.g., advanced weather forecasts and digital advisory platforms) or large positive spillovers (e.g., tools that reduce herbicide drift or biofortified crops that improve nutrition). In these cases, AIM for Scale and its partners can directly support procurement or enabling infrastructure. Where farmers already have strong private incentives to adopt, AIM for Scale’s role should be more catalytic: addressing coordination failures, spurring demonstration projects, or supporting open standards that reduce transaction costs, for example.

More generally, AIM for Scale must operate with the understanding that processes of intensification and productivity growth occur within the broader context of modernization, including urbanization, income and consumption growth, energy transitions, and a shift from subsistence farming to manufacturing and services. Innovation on the technological frontier in agriculture pushes forward the envelope of possibility for decoupling environmental harm and natural resource use from economic growth.⁵³ As such, the environmental intensity per unit of GDP can fall as technology improves, even while aggregate economic output grows.

Governance and Processes

The structure and governance of AIM for Scale should be tailored to the functions it provides. We identify options for structure and governance in the short term, assuming that AIM for Scale provides technical assistance and facilitation with innovation packages and that it operates as an autonomous nonprofit entity. Long-term governance depends not only on the functions AIM for Scale provides but also on which organization (e.g., FAO, World Bank) ultimately hosts AIM for Scale, if any. We therefore provide only limited discussion of governance in the long term or under a large-budget scenario.

In the short term, AIM for Scale should adopt a **multi-stakeholder alliance** model with inclusive governance and a lean, independent secretariat. Successful global initiatives like Gavi and the Global Fund, as well as studies of vertical funds, illustrate the value of **public-private governance** where donors, recipient countries, multilateral agencies, civil society, and the private sector share decision-making.⁵⁴ This model helps coordinate fragmented efforts and mobilize diverse resources behind common goals. AIM for Scale's governance should similarly balance funders' oversight with LMIC ownership and expert input. To facilitate alignment among key institutions involved with developing, financing, and implementing the scaling of innovations, AIM for Scale should ensure representation or observer roles for key institutions (CGIAR, FAO, IFAD, regional development banks, philanthropies, and farmers' organizations) on AIM for Scale's board or advisory panels.

Below, we describe options and recommendations for organizational structure, innovation assessment, proposal development, and accountability.

Organizational Structure

Board of Directors: Boards of directors are responsible for overall strategic direction, oversight of activities, and key decision-making. Although it has historically been common for boards to be comprised primarily of donors, a growing number of vertical funds and other institutions, such as Gavi, the Global Fund, GAFSP, and the Adaptation Fund, have illustrated that including donors, implementers, international agencies, the private sector, and civil society organizations in governance can enhance legitimacy and coordination.⁵⁵ Gavi, for example, includes the WHO, UNICEF, the World Bank, and the Gates Foundation as permanent members, facilitating technical coordination at the highest level. As stated in the “Principles for the Meaningful Involvement of Communities and Civil Society in Global Health Governance,” civil society organizations often view it as best practice to give communities and civil society a permanent role in decision-making and equal voting.⁵⁶

AIM for Scale’s board should be sized and composed in line with its stage of development and with best practices. In the short term, with primary support from the Gates Foundation and the United Arab Emirates, we recommend AIM for Scale establish a small 5–7-member board composed of the founding donors plus two to three non-donor voting seats representing LMIC governments, multilateral or regional organizations, and civil society organizations. This structure follows a common practice in early-stage initiatives, seen in Gavi’s initial years, in which core donors retain strategic control to ensure the organization’s launch aligns with the initial vision. At the same time, including other stakeholders from the beginning provides legitimacy, helps align AIM for Scale’s decisions with development needs, and creates a strong foundation for future growth. Including one or two non-voting private sector members in addition would bring market and technical perspectives while avoiding conflicts of interest. Limiting the board size facilitates closer engagement by each member, faster decision-making, and a lighter administrative burden.

As AIM for Scale secures additional donors — regardless of whether it expands into a fully integrated vertical fund — the Board should transition toward a fuller multi-stakeholder composition modeled on successful global initiatives such as the Global Fund. In this longer-term configuration, the Board should establish equal voting representation among donors, LMICs and regional development banks, and multilateral and civil society groups. For illustration, this could include:

- Five country and philanthropic donors
- Five MDBs and country representatives, such as national ministers of agriculture
- Five multilateral and civil society groups, such as FAO, AGRA, and One Acre Fund
- Three non-voting private sector members

We recommend that the larger Board adopt consensus-oriented decision-making whenever feasible to strengthen collective ownership of decisions. The full Board should vote on strategic decisions such as strategic plans or organizational priorities (e.g., primary outcomes like farmer income or food insecurity to focus on), innovation packages, annual budgets, and overarching policies. It should **delegate routine matters to a smaller Executive Committee or the Secretariat**. The Board should also adopt transparent governance practices, such as publishing board minutes and rigorously applying conflict-of-interest policies. If AIM for Scale expands into a grant-making vertical fund, the Board should establish additional committees, such as grants and investment committees, and create additional fiduciary and M&E mechanisms.

Additionally, AIM for Scale should ensure that strategic decision-making benefits from external expert insights on agricultural innovation scaling. While some institutions, such as the Global Innovation Fund, appoint innovation experts (e.g., academics, investors, and practitioners) directly to their board and use an advisory committee of organizational partners, we recommend establishing a **separate Scientific or Technical Committee** (detailed further below) comprising such independent experts.

Secretariat: With a moderate budget, AIM for Scale should create a lean central team led by an executive director to manage day-to-day operations such as partner coordination, proposal development, program management, M&E, communications, and budget management. This Secretariat should be empowered by the Board but relatively small, outsourcing expertise when possible. The Executive Director should report to the Board and have clear performance metrics tied to delivering on AIM for Scale's mission.

Hosting and Legal Status: In the short term, AIM for Scale should continue to operate as an independent institution with administrative and technical support, as needed, from the organizations that host its Secretariat staff (Presidential Court of the UAE and New York University-Abu Dhabi). This facilitates administrative processes such as HR, legal, and financial management. However, AIM for Scale should chart a path to legal independence after its pilot stage so that the Board and staff can sign agreements, receive funds directly, and operate with flexibility. In addition, establishing itself as an independent organization would enable AIM for Scale to better maintain neutrality, control its image and operational policies, and avoid potentially expensive and slow bureaucratic processes that would come from being part of a larger multilateral organization or UN agency. Independence could also help AIM for Scale avoid the culture of risk aversion that, according to expert interviews, is common in many larger organizations and deters ambitious scaling efforts.

Innovation Evaluation

To select specific innovations to support, AIM for Scale should implement an **evidence-based, multi-criteria, multi-stage, and context-sensitive assessment process**.⁵⁷ Leading institutions use formal criteria to prioritize innovations; for example, Gavi's Vaccine Investment Strategy ranks new vaccines by projected health impact, cost-effectiveness, equity impact, and implementation feasibility, while CGIAR's IPSR framework evaluates an innovation's maturity and the enabling environment needed for scale. AIM for Scale should combine these approaches into a process that evaluates both the potential impact if an innovation or innovation package is scaled as well as the readiness of an innovation to scale. In establishing its evaluation processes, AIM for Scale should also balance the value of global scientific and technical expertise with the need for country- or region-level knowledge, staging the collection and evaluation of this information to control costs.

To ensure rigor while further managing costs, AIM for Scale should adopt a tiered cadence for evaluations. All innovations should undergo light annual check-ins that update evidence, costs, and adoption data through desk reviews and partner reporting, feeding directly into the yearly selection cycle. In addition, AIM for Scale should conduct full reassessments every two to three years, involving deeper analysis of cost-effectiveness, implementation feasibility, and readiness, and drawing on new primary data and expert consultations where needed. The timing of these full reassessments should reflect the pace of change in different innovation domains: for example, livestock genetics and irrigation infrastructure may only require reassessment every three to four years, while digital tools or mechanization technologies may warrant reevaluation every one to two years. To stay responsive without adding cost-intensive off-cycle reviews, AIM for Scale could also define specific evidence or market “triggers”—such as a major meta-analysis, a sharp input price shift, or new regulatory approval—that would automatically flag an innovation for prioritized review in the next annual cycle.

Evaluation Criteria: In determining evaluation criteria, AIM for Scale should consider common criteria used by Gavi, CGIAR, and other institutions.^{58,59} These include:

- I Evidence of impact on target outcome (e.g., crop yield):** Unlike immunization, where efficacy is relatively consistent across populations, agricultural innovations often have heterogeneous and context-specific effects. The effectiveness of improved seeds, for instance, depends not only on uptake but also on agronomic conditions, farmer behavior, and access to complementary inputs. In assessing evidence of impact, AIM for Scale should therefore examine not only average effect sizes and study quality but also the consistency of results across settings. As reflected in the below criteria, they should also assess whether the mechanisms and enabling factors that drove positive outcomes in the literature are present in the target geography.

- | Cost-effectiveness:** What is the additional cost per unit of outcome, such as per ton of yield gain or per person for whom food insecurity is averted? Assessments should adopt a societal perspective, accounting for all economic costs incurred by donors, governments, delivery partners, and farmers, net of revenues or savings, over an appropriate time horizon with standard discounting. Outcome estimates should be drawn from rigorous evaluations, such as randomized or quasi-experimental studies, systematic reviews, or validated models. Both costs and outcomes should be contextualized using local data and realistic adoption scenarios.
- | AIM for Scale comparative advantage.** For example, are other organizations set to successfully scale the innovation? Is the innovation relevant in multiple regions and does it require the scaling approach that AIM for Scale offers?
- | Alternative interventions:** Consideration of whether greater adoption of other interventions, particularly those currently seeing rapid increases in adoption, would obviate the value of the innovation.
- | Demand for the innovation:** How widely is the innovation currently used under relevant contexts? For example, is it commonly used among stakeholders who were not involved in pilots or other projects related to the innovation? This indicates that there is at least a small market for the innovation and that some stakeholders do not face prohibitive barriers to adoption. However, if adoption is already widespread or rapidly growing in the target population, AIM for Scale's involvement may be non-additional.
- | Implementation feasibility:** What are the enabling factors and bottlenecks to scaling? These should include government regulations, incentives, and other policies; availability of financing; the presence of complementary technologies or practices; and market infrastructure and access. How feasible is it to address the bottlenecks to scaling?

Global Innovation Screening: In its earliest phase, AIM for Scale could commission targeted external reviews of innovations identified by its Secretariat or the existing Advisory Panel. Any commissioned evaluations should follow a detailed and standardized process to ensure consistency, transparency, and rigor.

As AIM for Scale becomes established, it should create a global **Technical Review Committee (TRC)** to screen potential innovations for AIM for Scale to focus on. The existing Advisory Panel could also fill this role. A standing committee offers consistency over time, strong institutional memory, and credibility with stakeholders and reduces Secretariat staff time associated with recruiting and managing consultants. However, paying TRC members a fixed, predetermined rate (whether it is per

hour, per evaluation, or a lump sum) can increase costs compared to a competitive bidding process for consultants. The TRC should be composed primarily of academics specializing in agricultural sciences and economics, nutrition and human health, development economics, and affiliated fields. Including nutrition and health stakeholders helps ensure that innovations prioritized for scaling also improve nutrition and health outcomes.⁶⁰ Including development economists should aid in assessing cost-effectiveness and evidence of impact, among other criteria.

Alternatively, if the Board wishes to have a more robust Secretariat, AIM for Scale could establish a **roster of consultants** it contracts with to conduct the innovation screening. This would provide greater flexibility to match expertise to specific innovations and could cost less than the standing TRC. However, it can introduce variability in judgments and would require more Secretariat oversight for recruiting consultants, developing RFPs, and quality assurance. Many leading international programs use rosters effectively. For example, Horizon Europe maintains a roster of evaluators that it selects from to review proposals, the Global Environment Facility uses a roster of experts to support its Scientific and Technical Advisory Panel, and the Global Innovation Fund draws on external experts to assess full applications.

Regardless of whether it establishes a TRC or relies on consultants, AIM for Scale should conduct the global screening in several stages. First, it should conduct a **standardized desk-based assessment** of key criteria, such as those listed above, drawing on existing syntheses, global datasets, and targeted stakeholder input. Although evaluations of many criteria may vary by region, the data needed for evaluation of some indicators is often sufficiently accessible to enable review by a global body. For example, other efforts such as CERES2030 and HESAT2030 have conducted global syntheses of the evidence of effectiveness and cost in specific areas such as youth skills training in agriculture and nutrition-sensitive interventions.^{61,62} Second, the screening should incorporate a brief validation step, conducting **key informant interviews** — such as ministry officials, local agribusinesses, or farmer organizations — to confirm the desk assessment results and identify any major barriers likely to block scaling that are not publicly documented.

To maintain a rigorous evaluation process while managing costs, AIM for Scale should adopt a **tiered evaluation cadence**. Each year, the TRC or consultant roster should conduct light desk-based updates of previously assessed innovations (or at least any that were shortlisted but not advanced) and scan for new innovations or categories not yet reviewed, such as generative AI-based extension services or RNA-based biopesticides. These annual desk-based updates should draw on new evidence, cost and adoption data, regulatory developments, and data submissions from external partners to update the screening results. In addition, AIM for Scale should consider conducting full reassessments of a subset of innovations every two to four years, incorporating deeper analysis

and broader expert consultation. To conduct these most efficiently, the frequency could vary by innovation domain — slowly developing areas such as livestock genetics or irrigation infrastructure may require review only every three to four years, while digital tools may warrant reassessment every one to two years. Triggers for deeper review could include new evidence, such as a large randomized trial or meta-analysis that shifts the estimated impact of an innovation, or major market and policy changes, such as the spread of a regulatory regime for a new technology.

To increase the comprehensiveness of the innovations and data it evaluates, AIM for Scale should also consider establishing a **process for submitting structured data** that researchers, companies, and other actors at any level can use to share information following a standardized format (e.g., results from unpublished field experiments; cost estimates from grey literature, unpublished company data). Alternatively, AIM for Scale can explore using emerging AI approaches to extract data from unstructured submissions, using some of the techniques pioneered by CERES2030.⁶³

Ranking: Based on the screening results, the TRC — or Secretariat if there is no TRC — should rank innovations based on the screening results. The Secretariat should then use the ranked list to select innovations or innovation packages to advance, applying portfolio balance considerations (e.g., region, commodity, risk profile) and ensuring each candidate meets minimum levels for key criteria such as evidence of impact and cost-effectiveness.

Partner Interest Gauging: The Secretariat should present selected innovations to potential partners — including regional development banks, national governments, and multilateral agencies — to gauge whether they could provide sufficient financial and political support to launch a scaling effort. Support should be assessed with clear measures and thresholds such as a memorandum of understanding or letter of intent, evidence of budget and/or staff being allocated to the innovation, or written support from an internal champion with decision-making authority. AIM for Scale should not advance innovations that fail to meet a predetermined threshold for support, such as formal expressions of interest from at least five organizations indicating at least \$100 million in financing.

Regional Readiness Assessments: Assessing the feasibility of scaling innovations often requires in-depth, context-specific knowledge of political dynamics, policy environments, market structures, and other enabling factors or bottlenecks that are rarely documented systematically.⁶⁴ To ensure that project proposals are informed by this understanding, AIM for Scale should coordinate with partners to complete standardized readiness or bottleneck assessments for innovations with significant partner interest. These assessments should adapt elements from well-validated frameworks, such as CGIAR's simplified Scaling Readiness matrix,⁶⁵ and should be conducted at either the regional or country level depending on the Board's desired level of detail for proposals.

Partners should lead or fund these assessments, leveraging their regional expertise and enabling AIM for Scale to remain lean. However, AIM for Scale should retain control over the terms of reference, methodology, and quality assurance, and it should require the use of an AIM-approved framework to ensure comparability across cases.

In conducting regional assessments, AIM for Scale should consider following CGIAR's approach of **defining an "Innovation Package"**: the full suite of complementary components required to scale an innovation successfully, including policy approvals, supply chains, financing mechanisms, training programs, and other support systems. For example, scaling drought-tolerant millet would require analysis of local seed availability, extension agent training, and market access for surplus grain. If AIM for Scale adopts this approach, assessments should produce a diagnostic profile detailing the current use of each component of the relevant package and a prioritized list of bottlenecks with mitigation options. Assessments should be rapid and time-bound (e.g., 3–4 weeks) to avoid delay and manage costs, with clear deliverables that feed directly into proposal design.

Proposal Development and Accountability

Proposal Development: The Secretariat should collaborate closely with prospective funding partners to co-develop proposals while incorporating input from prospective implementing organizations, civil society or farmer groups, government stakeholders, and local beneficiaries. Proposals should be clearly informed by the innovation screening and readiness assessments and should articulate:

- The need for the innovation, its anticipated impact, and its cost-effectiveness
- A credible and clear pathway for the innovation to scale through public, private, or public-private mechanisms
- The anticipated impact of the proposed scaling effort, including how it would address existing coordination challenges and the largest bottlenecks identified in the regional assessments
- The estimated magnitude of funding required, and the core partnerships needed at a minimum to support successful scaling
- The capacity of AIM for Scale to carry out the required activities, e.g., building partnerships, holding partners accountable to commitments, and providing technical assistance

The Technical Review Committee should provide comprehensive input on the proposal with iterative rounds of feedback and revision by the Secretariat.

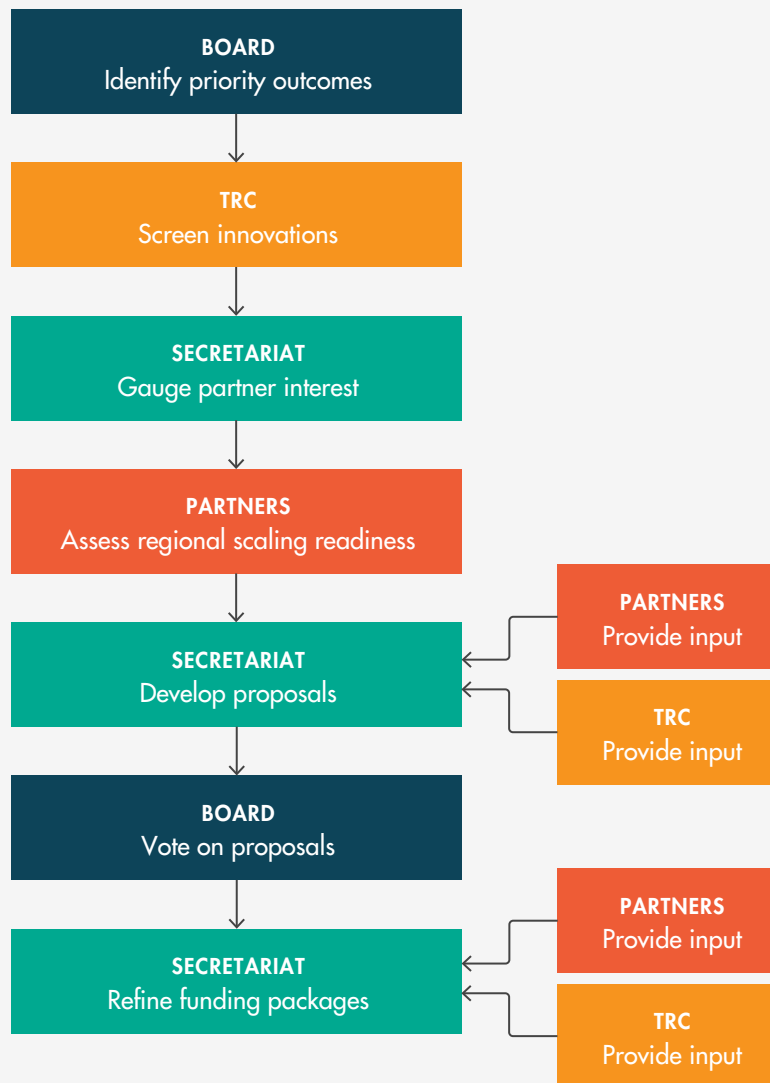
Funding Package Development: The Board should vote on final proposals. Upon approval by the Board, the Secretariat can then facilitate the development of full funding packages in collaboration with funding partners. At this stage, partners may conduct more granular assessments, such as at the subnational level, to prioritize geographies, refine the sequencing of activities, and ensure implementation plans are adapted to local realities.

Given their earlier role in assessing the potential impact and bottlenecks faced by innovations, the Technical Review Committee should review the funding packages to evaluate that they are tailored to address known bottlenecks and provide suggestions for improvement.

Monitoring, Evaluation, and Learning (MEL): AIM for Scale should establish a robust MEL system that initially tracks intermediate process indicators (e.g., policy adoption, value-chain improvements) and later — as AIM's projects mature — tracks final outcomes of interest (e.g., average increase in farmer income, nutrition impacts). MEL results should inform decision-making, including a stage-gate system in which periodic progress assessments determine whether projects advance, adapt, or conclude. Given AIM for Scale's unique facilitation and dealmaking role and its focus on long-term scaling, it may take several years to implement stage-gates effectively. Initial gates should focus on partnership development and innovation readiness, with later gates assessing whether the target rates of adoption and impact or key elements of a scaling strategy (e.g., reducing the cost of an input to a set level) are being achieved.

This structured process ensures proposals are evidence-driven, stakeholder-inclusive, and rigorously vetted, leveraging external expertise at key stages. As AIM for Scale matures and gains experience, adjustments to the organizational structure and processes may be warranted based on the initial phases of implementation. For example, as AIM for Scale expands the number of proposals and funding packages it develops, it may need to establish subcommittees within the Technical Review Committee or multiple committees to ensure that members have the capacity to rigorously carry out all their responsibilities in a timely manner.

FIGURE 3. Operational process for developing innovation packages



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APPENDIX 1: GLOBAL FINANCIAL SUPPORT FOR AGRICULTURAL INNOVATION

This appendix describes how support for agricultural innovation, and for agricultural development more broadly, is insufficient across government, the private sector, and official development assistance (ODA). Addressing the funding gap is critical in the long run, as is improving how effectively funds are spent and projects developed.

Domestic government support: The Organization for Economic Co-operation and Development (OECD) estimates that across 54 countries⁶⁶ total support to agriculture averaged \$842 billion (USD) per year during the 2021–23 period. However, nearly 80% of this support was in China, the United States, India, and the European Union. Also, despite the substantial overall financial commitment to agriculture, only 2.9% (about \$24 billion) was directed towards innovation, slightly less than the 3.2% observed at the beginning of the 21st century. Considering this, the OECD advises countries to strategically redirect their public subsidies and other forms of support towards critical innovation, productivity, and sustainability goals.⁶⁷

Private sector support: The private sector plays a crucial role in funding the development and scaling of agricultural innovations.

Venture capital and private equity investments in agrifood tech startups are also playing a growing role. According to AgFunder, though global funding for agrifood tech startups dramatically fell by 49% in 2023, it leveled off in 2024 at about \$16 billion. However, the funding landscape exhibits regional variations. Funding more than tripled in South Asia to \$2.6 billion yet fell 17% in Africa to \$192 million and 23% in Southeast Asia to \$361 million. Private sector funding in Africa still constitutes a small fraction of global investment: just 5% of developing market investment and less than 2% of global investment.⁶⁸

The gap in private sector funding extends to agricultural research and development (R&D). The private sector's spending on agricultural R&D in developing countries accounts for only 2% of global agricultural R&D spending. Most R&D occurs in higher-income countries. Publicly funded R&D and extension services in developing countries cannot fill this gap in private sector investment.⁶⁹ This stifles agricultural productivity, contributing to food insecurity and undernourishment for hundreds of millions of people.

Official Development Assistance (ODA): Though ODA disbursements to agriculture have grown substantially since the 1990s and 2000s, growth has slowed, totaling \$9.098 billion for developing countries in 2023.⁷⁰ This accounted for 3.3% of the total \$275.6 billion official donors disbursed to developing countries for all sectors. About 56% of ODA to agriculture was provided by countries through bilateral assistance, with the remainder provided by multilateral institutions.

Multilateral institutions provide key financial support. For example, the World Bank's International Finance Corporation (IFC) invests and provides services across the entire agribusiness and forestry value chains, with \$2.3 billion in commitments in 2024. While not solely dedicated to innovation activities, these investments can facilitate the adoption of new technologies and practices by improving access to credit for small farmers, enhancing logistics, and supporting sustainable agriculture initiatives.

ODA interventions also mobilize private finance. In 2023, official donors, primarily MDBs, mobilized nearly \$70 billion, of which \$2.5 billion (3.6% of sector-allocable finance) was allocated to agriculture.⁷¹

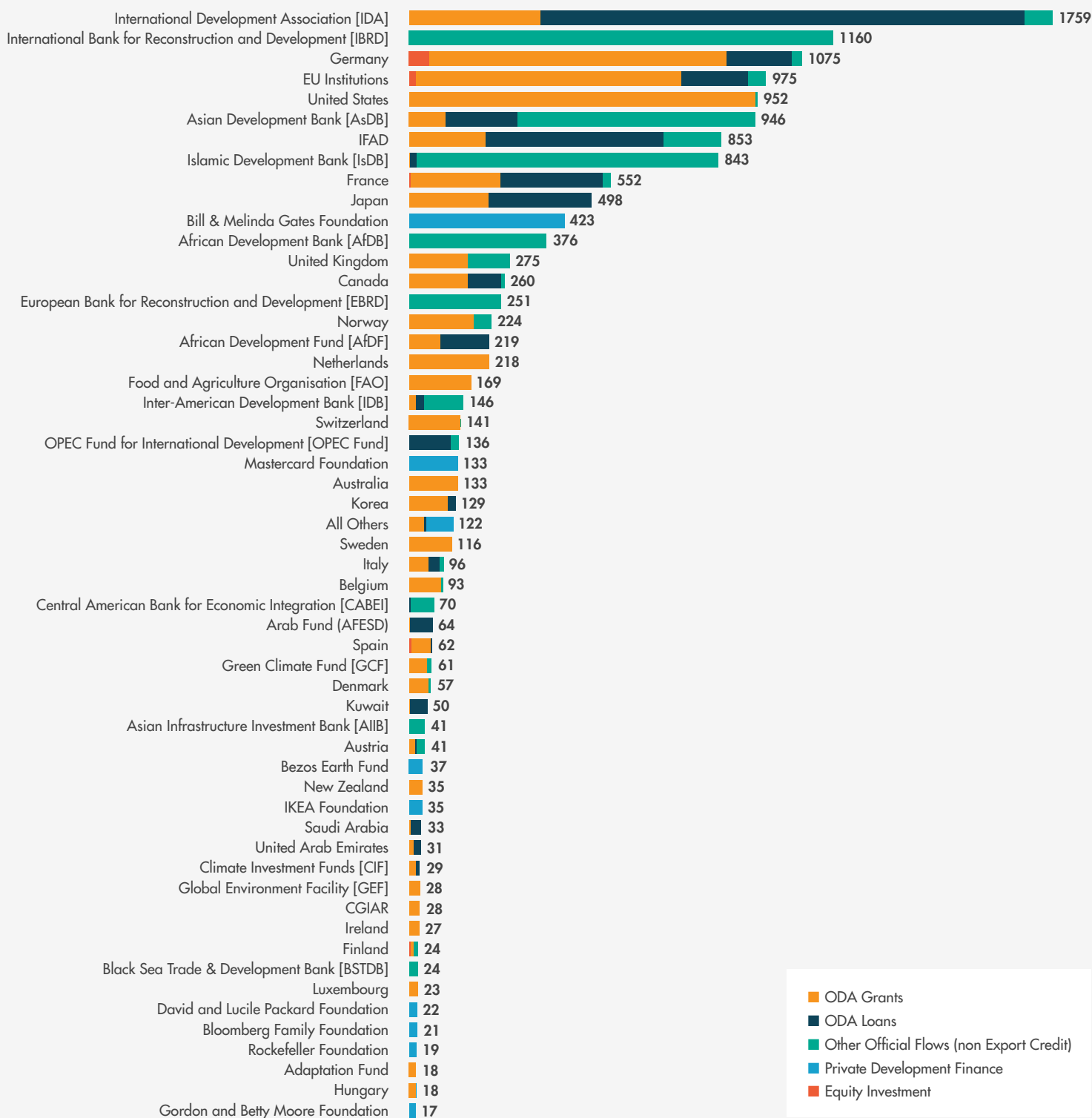
Overall funding gap: While total public and private support for agriculture is substantial, there is nevertheless a significant investment gap. Estimates of funding needs, with different scopes and methods, are wide-ranging but consistently highlight the need for funding to grow at least several-fold. Analyses typically estimate that tens of billions in additional annual funding are needed to achieve Sustainable Development Goal 2 (SDG 2) by 2030, and that hundreds of billions in additional annual funding are needed to align with other SDGs or to otherwise broadly transform agrifood systems.⁷² For example, Rosegrant et al. (2022) estimate that “additional agricultural R&D investments of USD 4 billion per year above baseline investments, together with USD 6.5 billion per year invested in technical climate-smart options, can reduce hunger to 5% globally and achieve greenhouse gas emission reductions consistent with the Paris Agreement 2°C and 1.5°C pathways to 2030.”⁷³ The Ceres2030 project estimated that in order to end hunger and double smallholder incomes by 2030 while keeping greenhouse gas emissions below commitments made in the Paris Agreement, donors must double ODA for agricultural development and food security, increasing it by \$14 billion per year, and low- and middle-income country governments must increase funding by \$19 billion.^{74,75} The UN has estimated that an additional \$140 billion per year in financing for agriculture and rural development is needed to end poverty and hunger, including \$50 billion additional from the private sector.⁷⁶ To achieve a broader transformation of global food systems that reduces chronic hunger, makes healthy diets affordable, and supports multiple other SDGs, Laborde and Torrero (2023) estimate that as much as \$680 billion in additional spending is needed through 2030.⁷⁷

The funding gap is particularly large in the Global South. A 2023 study commissioned by the Commission on Sustainable Agriculture Intensification (CoSAI) estimated that approximately \$60 billion is directed towards agricultural innovation in the Global South each year, including funding from governments in the Global South, development partners, private companies, and private equity and venture capital funds.⁷⁸ Notably, a significant portion of this funding, between 60% and 70%, originates from the governments of the Global South themselves, with the government of China accounting for a substantial share, potentially as much as all other governments combined. Despite this considerable investment, the \$60 billion represents only about 4.5% of the total agricultural output of the Global South, suggesting that the investment intensity is relatively low. Furthermore, the study revealed that less than 7% of the total funding in the Global South had detectable environmental intentions, indicating a potential gap in prioritizing sustainability within agricultural innovation funding in these regions. Ceres2030 estimates that the need for additional donor spending is largest in Africa: \$8.2 billion, two-thirds of the additional public spending Ceres2030 estimates is needed globally.

In the long term, increasing overall funding is imperative. However, there are numerous opportunities to enhance the effectiveness of existing financial resources. This is particularly urgent with declining development support from donors such as the United States and United Kingdom. Following best practices and developing institutional arrangements to better support scaling of agricultural innovations, as described in this report, can amplify the reach and efficacy of current investments. Improving the effectiveness of development finance may also help spur future increases in development assistance.

FIGURE 4. Annual development disbursements to agriculture

2020–2022 average flows, USD 2022, millions



Includes flows to “Developing countries” for DAC5 sectors “Agriculture” and “Fishing.” Includes disbursements for all modalities and channels. Donors with at least \$15 million in disbursements are shown. Others are aggregated under “All Others.” All IFAD flows are assumed to be for agriculture. OECD does not report GAFSP flows.

Source: OECD CRS. Data accessed 04/01/2025.

APPENDIX 2: ANALYSIS OF AGRICULTURAL SCALING EFFORTS OF SELECT INSTITUTIONS

There is a large number and variety of international institutions involved in scaling agricultural innovations. In fact, the financing ecosystem for agriculture is highly fragmented, with bilateral ODA accounting for the majority of ODA to agriculture.⁷⁹ A comprehensive mapping of all donors and efforts is outside the scope of this report. This appendix describes the scaling initiatives of a select group of the largest institutions that operate globally, particularly the FAO, IFAD, World Food Programme, CGIAR, World Bank, African Development Bank, GAFSP, and AgResults. This assessment of their strengths, limitations, and relevance to scaling agricultural innovations further illustrates gaps in the agricultural scaling landscape that AIM for Scale can address.

FAO Hand-in-Hand Initiative

The Food and Agriculture Organization of the United Nations (FAO) is a UN specialized agency leading global efforts to end hunger and ensure food security. FAO's core mission is to achieve food security for all, making sure people have regular access to enough high-quality food for active, healthy lives. In pursuing this mission, FAO promotes sustainable agriculture and the responsible management of natural resources, recognizing that climate change and environmental degradation are integral challenges to ending hunger. FAO's current strategic vision, encapsulated by the "Four Betters" (better production, better nutrition, a better environment, and a better life), emphasizes innovation, technology, and inclusiveness as accelerators for agrifood systems transformation.⁸⁰

FAO has launched and supported multiple global initiatives at the nexus of agriculture, climate, and food security to scale up innovations. These initiatives aim to harness new technologies and practices, bridge critical funding and coordination gaps, and accelerate the adoption of solutions from the research lab to farmers' fields.

One of FAO's flagship efforts in recent years is the Hand-in-Hand (HIH) Initiative, launched in 2019. HIH supports country-led efforts to transform agrifood systems with an emphasis on eradicating poverty and hunger in the poorest and most vulnerable regions. It uses geospatial mapping, economic analysis, and partnership brokering to identify high-impact agricultural investment opportunities. It then matches governments with donors and development partners that can provide needed funding, financing, technical assistance, and other resources.

As of late 2024, HIH was working with 74 countries across Africa, Asia, Latin America, and elsewhere, helping them prepare ambitious investment plans in areas like value-chain development, digital agriculture, climate-smart infrastructure, and agro-industries. HIH helps coordinate funding, partnerships, and other resources to implement these plans including through its Hand-in-Hand Investment Forums, where governments showcase projects to potential donors, development banks, impact investors, and other partners.^{81,82} In 2024, HIH projects had \$5.4 billion in committed resources and resources under negotiation, with many governments seeking funds in the tens or hundreds of millions.⁸³

Relevance for scaling innovations at agriculture-food-climate nexus

HIH's approach lends itself best to operating at the later stages of the innovation cycle, developing investment plans and brokering resources to scale up well-researched solutions. The HIH Initiative's use of data and modeling seeks to identify which innovations or value-chain improvements have the highest potential in each region. This helps ensure that investments are evidence-based and cost-effective.

HIH helps address several economic failures. HIH primarily aims to address coordination failures by bringing together diverse stakeholders to align their efforts where otherwise they may remain fragmented. In doing so, it helps bridge the “valley of death,” where many innovations fail to reach scale due to lack of funding, helping countries prepare bankable projects backed by data on economic viability and expected impacts. Presenting these projects to development banks and funds at the Investment Forum helps attract capital that poor countries or small enterprises could not mobilize alone. HIH's efforts also seek to overcome information asymmetries and gaps by making geospatial and economic data and analyses accessible to country governments, investors, and other decision-makers so they can make more informed investments in projects.

However, there are no rigorous estimates yet for the effectiveness and impact of the HIH program. In 2025, FAO published its initial plan⁸⁴ to evaluate the causal impact of the HIH Initiative using various satellite and open-source datasets. For now, the only indicators of effectiveness are FAO's ex-ante projections of expected results. From 2022 to 2024, FAO reports that the internal rate of return of investments sought ranged from 23% to 24%; the number of direct beneficiaries planned ranged from 3 to 26 per \$1000 in funding; and the expected increase in average income per capita ranged from \$637 to \$1,896. Though this may appear promising, without a formal program evaluation, any impacts can't be attributed to HIH.

Limitations in scaling innovations

Reliance on donors: HIH does not itself finance projects but rather catalyzes external funding, relying on external entities to succeed. It works closely with multilateral development banks, IFAD, bilateral donors, and the private sector to finance projects. This complements other international efforts like the World Bank's food system investments or IFAD's rural programs; HIH often helps prepare the pipeline of projects that these institutions can fund. However, this approach also requires governments as well as donor institutions to share FAO's priorities and conclusions about what projects and innovations are worth investing in.

IFAD

The International Fund for Agricultural Development (IFAD) is a UN agency that provides grants, low-interest loans, and technical assistance to governments in low- and middle-income countries to support agricultural and rural development projects. IFAD currently provides about \$1.1 billion annually in financing. IFAD supports relatively large-scale projects with project loans typically ranging from \$20–100 million, with an average loan of \$39 million. Projects typically last five to seven years.⁸⁵

IFAD is considered a vertical fund, focused on the agriculture and rural development sector. It provides a full range of financial support, including grants, credit, and loans. Unlike some vertical funds that have specific targets, such as the Global Fund, it finances a wide range of activities. It also primarily provides financing to governments, rather than to NGOs or private implementers.

Relevance for scaling innovations at agriculture-food-climate nexus

Scaling successful interventions has long been central to IFAD's strategy, though efforts have received inconsistent support and scaling has not effectively been mainstreamed into operations. It was one of the earliest development institutions to make scaling an explicit operational objective, beginning in 2002 and describing it as “mission-critical.” Its 2016–2025 Strategic Framework lays out a vision focused on “innovation, learning from that innovation, and scaling up successes for expanded and sustainable impact.” IFAD's updated Operational Scaling Framework, approved but unpublished, further articulates how it will integrate scaling into project design and other operations.⁸⁶

IFAD defines scaling as “expanding, adapting, and supporting successful evidence-based policies, technical innovations, successful programs, and other knowledge so that they can leverage resources and partners to deliver larger results for a greater number of rural poor and small farmer

producers in a sustainable way.”⁸⁷ In practice, this approach often involves piloting an intervention, conducting a rigorous evaluation, and then using the results and lessons learned to collaborate with governments or other donors to inform policy change or otherwise expand adoption. For example, IFAD will support an innovative model in a few districts, demonstrate results, and then work with governments or larger donors to replicate or expand that model nationally.

Project teams are required to assess scalability when designing projects and to articulate an approach for innovation, learning, and scale-up.^{88,89} IFAD’s operational framework also provides guidance on incorporating scaling into country strategies and throughout the lifecycle of projects. Both IFAD management and IFAD’s Independent Office of Evaluation formally assess scaling efforts and outcomes. Key indicators include whether projects define clear scaling objectives, take concrete actions to support scale-up, secure partner uptake or follow-up financing, and ultimately achieve results that are sustained or replicated beyond the project’s duration and geography.

Limitations in scaling innovations

Incomplete operational mainstreaming: Despite its well-defined scaling strategy and operational frameworks, IFAD has not effectively mainstreamed scaling into its operations. Evaluations by management and the Independent Office of Evaluation found that scaling performance has been consistently weak, with little improvement⁹⁰. Instead, scaling has often been treated as a secondary objective rather than as the central goal. IFAD’s country programs often take an opportunistic approach, seeking to scale efforts on a case-by-case basis or after pilots have been launched rather than systematically. As with many institutions, scaling has remained difficult due to limited technical support and competing staff priorities, among other factors.⁹¹

Reliance on governments: IFAD also emphasizes government ownership as key to scaling, aiming to have governments continue and expand projects after IFAD’s exit. When political will and resources are aligned, this can lead to large-scale adoption and sustainability. However, this dependence on governments also limits which innovations and interventions IFAD supports and creates barriers to scaling where public sector capacity is lacking.

IFAD’s modest funding: More broadly, IFAD has struggled to secure sufficient donor contributions to achieve its ambitions. In 2020, IFAD gained the ability to borrow money from financial markets rather than relying solely on contributions and loans from governments. However, recent challenges in securing donations — including falling support from the United States — and the higher interest rates for market borrowing may limit IFAD’s ability to focus on serving the most vulnerable farmers and countries.⁹²

World Food Programme (WFP) Innovation Accelerator

The World Food Programme (WFP) is a humanitarian organization that provides food assistance and logistical support to save lives in emergencies and enhance the nutrition and quality of life of vulnerable populations during crises. WFP's Innovation Accelerator supports and scales high-potential solutions to end hunger worldwide through several programs. The Sprint Program is a six-month accelerator that helps innovators and start-ups reach proof-of-concept and develop prototypes ready for implementation, providing up to \$100,000 in funding, mentorship, and access to WFP's global network. The Scale-Up Enablement Program, launched in 2019, supports advanced-stage innovations that have already proven their concepts within WFP field operations and are working to optimize their impact and reach at regional or global levels. The Scale-Up Enablement Program assists advanced-stage innovations that have demonstrated successful proof of concept within WFP field operations and are now aiming to enhance their impact and expand their reach on a regional or global scale. Through its "SDGx Acceleration" efforts, the Innovation Accelerator also collaborates with UN agencies and others to launch new programs that identify innovators working on critical challenges and provide funding, knowledge, and networks to help them expand.

The Innovation Accelerator has a relatively modest budget. In 2023, private and public sector partners provided \$19.2 million in direct funding. However, the initiative catalyzes additional funding. WFP's partner organizations provided a total of \$95.7 million in funding for the innovations that the accelerator supported.⁹³

WFP's Scale-Up Enablement Programme is arguably its most relevant program for supporting the scale-up of innovations at the nexus of food security, agriculture, and climate change. It provides tailored assistance in strategy, fundraising, communications, knowledge management, and mentorship to teams working on eligible innovations and initiatives. To be eligible for scale-up support, innovations must demonstrate measurable impact on food security and nutrition, proven effectiveness, a sustainable business model, alignment with WFP's work and Country Strategic Plans, and a capable team.⁹⁴

Relevance for scaling innovations at agriculture-food-climate nexus

Though WFP's Innovation Accelerator is not exclusively focused on the nexus of food, agriculture, and climate, it nevertheless supports relevant efforts. One of the 8 themes for projects in its portfolio is "Food Systems and Smallholder Farmers." In 2023 alone, projects in this theme reached over 5 million people, demonstrating WFP's potential for transformative global impact.⁹⁵

The Scale-Up Enablement Programme has backed a diverse range of initiatives, including food fortification efforts (e.g., Project Chakki and Sanku), digital solutions for food assistance (e.g., CODA), and logistics optimization (e.g., LogIE). It supported 14 active scale-up solutions in 2023.⁹⁶ Some have a clear connection to improving agricultural productivity while improving nutrition, mitigation, or adaptation. Others have a weak or indirect connection.⁹⁷

For example, the WFP Post-Harvest Loss Venture aims to address the problem of smallholder farmers in developing countries losing up to 40% of their harvest due to poor storage. The venture aims to improve food security and income for these farmers by scaling up post-harvest loss technologies and implementing sustainable business models. The approach includes training farmers in improved post-harvest handling techniques and providing access to hermetic storage equipment, with a focus on ensuring commercial viability for all stakeholders in the value chain. Collaboration with public and private sector partners, as well as local governments, is key to making these technologies affordable and accessible. For instance, WFP supported the development of the supply chain of hermetic bags in Mozambique, leading to over 3 million bags being sold in 2023.⁹⁸

As part of its SDGx Acceleration efforts, WFP has also begun to fund projects that directly support climate adaptation. Its Agricultural Innovation for Climate Resilience program, launched in 2023 with GIZ, supported entrepreneurs in sub-Saharan Africa to increase adoption of climate-resilient practices.⁹⁹ WFP's Climate Adaptation Innovation Accelerator Program, launched in fall 2024 with The Adaptation Fund aims "to identify, support and scale high-impact innovations that enhance climate adaptation in vulnerable regions."¹⁰⁰

Limitations in scaling innovations

Low focus on agriculture: Most of the Innovation Accelerator's work is not directly related to agricultural production. Seven of eight themes have little direct connection: WFP emergency operations, supply chain and logistics, nutrition, school-based programs, resilience and sustainable livelihoods, cash-based transfers, and other SDGs.¹⁰¹

Likewise, many of the innovations supported by the Enablement Programme are focused on improving WFP and other aid operations, nutrition, or other topics. Out of the 8 Enablement Programme alumni projects, only 3 are focused on smallholder farmers (Farm to Market Alliance, Post-Harvest Loss Venture, and Solar 4 Resilience), though two that are focused on livelihoods (H2 Grow and Rural Resilience Initiative) also have increased smallholder adoption of new farming practices such as hydroponic vegetable and fodder production in Pakistan, Burundi, Nigeria, and Kenya and drought index insurance for rice farmers in Côte d'Ivoire.¹⁰²

Small scale: Many of the accelerator's climate-focused efforts are also limited in scope and scale. The Climate Adaptation Innovation Accelerator Program, for instance, only supports early-stage innovations and the funding provided for scale-up was limited to about \$1 million (up to \$200k per venture).¹⁰³ The Agricultural Innovation for Climate Resilience program provided no more than 150,000 euros in grant funding to ten ventures.¹⁰⁴

This demonstrates that WFP and the Innovation Accelerator program are not clearly well positioned to scale innovation in the food system broadly. Rather, they are more narrowly focused on humanitarian relief and chronic hunger.

CGIAR

CGIAR, established in 1971 as the Consultative Group on International Agricultural Research, is the world's largest global agricultural research network, comprising 15 research centers recently unified under "One CGIAR." With a legacy that includes developing high-yielding wheat and rice varieties that launched the Green Revolution and vastly improved food security, CGIAR has evolved its mission to "deliver science and innovation that advance the transformation of food, land, and water systems in a climate crisis."¹⁰⁵ To advance this mission, the organization collaborates with governments, NGOs, and private-sector partners, developing science-based solutions particularly for smallholder farmers in developing countries.

Central to innovation and scaling since the 1960s, CGIAR has worked to extend its agricultural innovations through partnerships with national entities, though historically these efforts occurred on a somewhat ad hoc basis. Today, the organization focuses not only on developing innovations but also on ensuring they achieve widespread impact, concentrating on five key areas: climate adaptation and mitigation; environmental health and biodiversity; gender equality and youth empowerment; nutrition, health and food security; and poverty reduction.¹⁰⁶

CGIAR's approach to scaling has evolved significantly over the past two decades. Originally, the organization operated under the assumption that its agricultural innovations would scale organically through national agricultural research and extension systems (NARES). However, the 2007–2008 global food crisis led to increased funding and heightened donor expectations for greater impact at scale, accountability, and efficiency. This shift prompted a series of institutional reforms that culminated in the One CGIAR initiative, which aimed to centralize operations, improve collaboration, and ensure that research efforts translated into widespread adoption. At the same time, starting in 2017, a group of researchers developed the Scaling Readiness framework, later renamed Innovation Packages and Scaling Readiness (IPSR), to systematically assess and prepare innovations for scaling.

IPSR is a structured, evidence-based framework designed to address three key elements: assessing an innovation's readiness for scaling, identifying and mobilizing partnerships, and tracking progress toward large-scale implementation. IPSR evaluates an innovation's readiness and use along a 0–9 step scale, inspired by NASA's Technology Readiness Levels, to determine whether it is at the early idea stage or fully proven for broad adoption. CGIAR uses this assessment to create “innovation packages,” bundling technological, institutional, and policy-related elements to facilitate scaling. These packages ensure that the introduction of an innovation — such as a drought-resistant crop variety — coincides with appropriate agronomic practices, financial mechanisms, market access, and policy support, all of which contribute to its successful deployment at scale. The framework then diagnoses bottlenecks — such as lack of financial investment, weak institutional support, or gaps in value chains — that might hinder scaling and helps develop strategies to address them.

Scaling strategies developed under IPSR focus on stakeholder engagement, multi-stakeholder agreement, and partnerships. Because CGIAR does not directly implement scaling, IPSR emphasizes handoff to partners, including public institutions, private companies, and development organizations.

One example of IPSR in action is the RTB Scaling Fund, which helped scale innovations in root, tuber, and banana value chains across Africa, Asia, and Latin America. Between 2018 and 2020, the fund utilized the Scaling Readiness approach to identify, finance, and support eight innovation packages totaling approximately \$8 million. By structuring projects around scaling bottlenecks — such as weak seed distribution systems or lack of farmer awareness — and requiring innovations to have a “scaling partner” that demonstrated private sector demand, the initiative aimed to accelerate technology adoption and improve food security and incomes for over 500,000 smallholder households.^{107,108}

The IPSR approach has been progressively integrated into CGIAR's operational framework. Under the One CGIAR reform, all new CGIAR initiatives must develop scaling strategies early in their research cycle, defining innovation packages and identifying bottlenecks to adoption. As part of their 2030 strategy, CGIAR aims to “equip 500 million small-scale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems.”¹⁰⁹ In practice, this strategic shift has led to more structured partnerships between researchers, governments, private sector actors, and development agencies.

Relevance for scaling innovations at agriculture-food-climate nexus

CGIAR mainstreaming of IPSR is at an early stage, but it nevertheless contributes to scaling adoption of innovations at the intersection of climate, food security, and agriculture. With the IPSR approach, CGIAR has been able to systematically diagnose and address barriers to scaling some climate-smart solutions. CGIAR reports that in 2024, climate change was the principal impact area of 23% of innovations developed, 21% of innovations used, and 12 innovation packages.¹¹⁰

For example, CIAT led an innovation package to develop and expand the use of a measuring, reporting, and verification (MRV) framework and tool for monitoring deforestation emissions in Colombia. The Scaling Readiness assessment found that the MRV framework has been successfully piloted but not yet systematically used. To support scaling, the project includes complementary innovations such as agricultural training programs, communication strategies for knowledge dissemination, mechanisms to mainstream MRV into government frameworks, and public investment strategies to sustain implementation. The initiative brings together key government, private sector, and international organizations and targets farmers, agricultural extension agents, subnational government agencies, and private sector companies, among others.¹¹¹

One of the primary strengths of CGIAR's approach is its emphasis on holistic, demand-driven scaling. Unlike conventional models that focus solely on technical readiness, Scaling Readiness aims to ensure that all elements necessary for widespread adoption — such as access to finance, distribution networks, and social acceptance — are in place before an innovation is pushed to scale. This can lead to improved adoption rates and sustainability of CGIAR innovations, particularly in resource-constrained environments where scaling is often hindered by weak institutional support.

Limitations in scaling innovations

Despite its strengths, CGIAR's Scaling Readiness approach faces several key limitations.

Short track record: One of the primary challenges is its relatively recent implementation. While case studies indicate promising results, the long-term effectiveness of Scaling Readiness at the system-wide level is still being evaluated.

Internal capacity: Another challenge is the resource and capacity demands associated with the approach. Scaling Readiness requires comprehensive diagnostics, stakeholder engagement, and iterative monitoring, all of which can be time-consuming and resource intensive. In many CGIAR centers, research teams are still building internal capacity to effectively apply Scaling Readiness, and there is concern that without sustained funding, some projects may struggle to fully implement

the methodology. The organization is addressing this by investing in training and developing digital tools to streamline scaling assessments, but scalability within CGIAR itself remains a work in progress.

Partner capacity: Additionally, CGIAR's reliance on external partners for implementation presents risks. While CGIAR can design robust scaling strategies, its success ultimately depends on the capacity and commitment of partner organizations — government agencies, NGOs, and the private sector — to carry out large-scale adoption. This reliance on partners enables CGIAR to scale innovations further than it otherwise would be able to. However, weak partner engagement, partners having insufficient capacity, or shifts in political or economic conditions can hinder scaling efforts. For example, if a government changes its agricultural subsidy policies, an innovation that was previously scaling successfully may face adoption barriers overnight.

Focus on CGIAR research: A further limitation is the supply-driven nature of CGIAR's scaling efforts, where it prioritizes pushing its own research outputs rather than fully considering alternative solutions that may already be emerging within local contexts. While Scaling Readiness includes demand assessment steps, it remains fundamentally a tool for assessing and pushing CGIAR-generated innovations. **A notable gap in the innovation scaling landscape, therefore, is an effort that uses the IPSR approach applied across institutions, and particularly one that involves high levels of stakeholder input in the selection of innovations and scaling strategies, rather than a top-down research-driven approach.**

Monitoring, Evaluation, and Learning: Finally, monitoring adoption at scale remains a significant challenge. Once an innovation moves beyond CGIAR's direct oversight, tracking farmer adoption and long-term impact becomes difficult. CGIAR currently relies on government data and partner reports, which may not always be timely or accurate. The organization is exploring innovative monitoring solutions, such as remote sensing for crop adoption tracking and partnerships with private sector data providers but improving impact measurement remains a key priority.

Other CGIAR Efforts

CGIAR's Accelerate for Impact Platform (A4IP) is a venture-focused initiative that bridges scientific research and entrepreneurship to address pressing global challenges at the intersection of agriculture, environment, and health. Launched in 2021, A4IP builds on CGIAR's legacy to incubate and accelerate scientific innovations, aiming to transform them into market-driven solutions that contribute to the Sustainable Development Goals.

Relevance for scaling innovations at agriculture-food-climate nexus

Structured around three pillars, A4IP aims to:

1. **Leverage existing knowledge:** Incubate and accelerate existing science-based innovations that are in precommercial stages, connecting them with the innovation ecosystem and promoting an open innovation culture.
2. **Co-design and launch novel transformative innovations:** De-risk pioneering, market-driven research by funding visionary teams to develop breakthrough solutions in neglected areas with high potential.
3. **Nurture and institutionalize an entrepreneurial mindset:** Offer training, mentoring, and digital platforms to cultivate an entrepreneurial culture among scientists, attracting the next generation of innovators.

A4IP's initiatives include global innovation challenges, such as the Agrobiodiversity Innovation Challenge, which received nearly 350 submissions from 76 countries, and regional programs like the AgriTech4Morocco Innovation Challenge, aimed at enhancing agricultural efficiency and sustainability in Morocco. Through these efforts, A4IP fosters collaborations between researchers, entrepreneurs, and investors to accelerate the development and scaling of impactful, science-based solutions.¹¹²

Limitations in scaling innovations

Small scale: The scale of funding that A4IP's initiatives provide can be small, limiting its ability to help ventures scale and potentially reducing the diversity of applicants who apply. For example, the Agrobiodiversity Innovation Challenge, held in 2021, offered cash prizes of \$5,000, in addition to providing technical assistance and scholarships for training.¹¹³

World Bank Group

The World Bank Group, comprising five institutions, is the largest global funder of agricultural development assistance. It plays a key role in supporting the shift towards more efficient and climate-smart food systems.

- The International Bank for Reconstruction and Development (IBRD) offers financial products and policy advice to aid countries in reducing poverty and fostering sustainable growth.

- The International Development Association (IDA) gives concessional grants and loans to the governments of the world's 75 poorest countries.
- The International Finance Corporation (IFC) provides loans, guarantees, equity, advisory services, and project development services, while also mobilizing additional capital to stimulate private sector investment in developing countries. These initiatives help farmers adopt new technologies, boost productivity, and bring industry players together to adopt new standards.
- The Multilateral Investment Guarantee Agency (MIGA) offers guarantees against non-commercial risks to encourage foreign investment in developing countries. This helps attract and mobilize private capital in agriculture as well as other sectors.
- The International Centre for Settlement of Investment Disputes (ICSID) provides international facilities for conciliation, mediation, and arbitration of investment disputes.

Overall, the World Bank Group provides roughly \$4.5 billion in grants, loans, and other support to the agriculture sector, though with a commitment — announced late 2024 — of doubling this to \$9 billion annually by 2030.¹¹⁴ Of the five institutions, IDA has the greatest estimated impact on food and nutrition security. In FY24, IDA commitments for agriculture totaled \$2.3 billion (7% of the total IDA commitments of \$31.2 billion), closely followed by IBRD's commitment of \$2.2 billion (6% of its total \$37.6 billion).¹¹⁵ However, the World Bank estimates that IDA has had a significantly larger impact on food security, improving food access for 160 million people compared to 20.5 million for IBRD and 20 million for IFC.¹¹⁶ While it is important to consider IBRD and IFC activities given the magnitude of their funding commitments for agriculture, when assessing the global agricultural scaling landscape, the impact of IDA activities makes them particularly important.

IDA has also introduced a private sector blending facility in partnership with IFC and MIGA. This facility has \$2.5 billion in funding, enabling it to rebalance the risk profile of private sector projects in low-income countries (LICs) and fragile and conflict-affected countries, including projects in the agricultural sector.¹¹⁷

Relevance for scaling innovations at agriculture-food-climate nexus

Since the signing of the Paris Agreement in 2015, the World Bank has significantly increased its annual funding for climate-smart agriculture sevenfold, providing about \$3 billion annually for the category.¹¹⁸ Generally, the World Bank appears to have overestimated how much of its funding is climate-related, categorizing as “climate-related” hundreds of projects with little connection to climate

mitigation or adaptation.¹¹⁹ Nevertheless, even if the Bank's support for climate-smart agriculture is substantially less than reported, it would be a sizable portion of overall financing for agriculture.

In addition, the World Bank generally has the scale, expertise, and capacity to lead coordination efforts in agriculture, including in agricultural climate adaptation and mitigation efforts.

Assessments of the World Bank's efforts, particularly IDA, find that its projects are highly effective and that it has significantly improved agricultural policies, regulations, livelihoods, and adoption of research and extension frameworks.¹²⁰

Example efforts:

- One of the World Bank's newer climate-related efforts is the Food Systems 2030 Umbrella Trust Fund, which has committed \$158.4 million to date, including \$67.6 million in fiscal 2024. It is providing grants in 56 countries to fund data analyses and pilot projects that aim to bolster preparedness for food crises and pandemics, redirect agricultural spending towards sustainability, mainstream climate-smart agricultural practices, and digitize agricultural services. As part of this, \$95 million in recipient-executed grants have been provided to seven countries (Bangladesh, Colombia, Ghana, Indonesia, Malawi, Mozambique, and Tanzania) to help them reallocate public spending towards more efficient and sustainable agricultural development.¹²¹
- A recent example of the World Bank's support for climate-smart agriculture is its approval of \$250 million for the Morocco Transforming Agri-food Systems Program, which aims to enhance the Moroccan agrifood system's resilience to climate change by promoting climate-smart practices, improving water and soil management through conservation agriculture, and supporting the expansion of organic farming.¹²²
- Another large-scale example is the Food Systems Resilience Program (FSRP), a World Bank initiative to strengthen medium-term food systems resilience across participating countries in Africa that are facing acute food insecurity due to extreme weather, pests, disease outbreaks, market instability, and conflict. With \$2.75 billion in funding, the FSRP supports efforts to increase adoption of new farm practices, improve natural resource management, and enhance market access, among other activities. For example, in Ghana, FSRP is funding efforts to expand irrigation, access to digital advisory services, and use of climate-smart seeds and fertilizers for producers of rice, maize, and soybeans.¹²³ Specifically, it promotes climate-smart agriculture research and implementation while fostering cross-border collaboration and knowledge sharing through regional bodies including the African Union Commission, the Intergovernmental Authority on Development, and the Center for Coordination of Agricultural Research and Development for Southern Africa.

Limitations in scaling innovations

External coordination: World Bank projects are occasionally not well aligned with country priorities, which can reduce their effectiveness. Likewise, projects could better engage local stakeholders and civil society organizations.

Internal coordination: In addition, the 2013 World Bank reorganization separated agriculture into a different Global Practice than some related areas such as irrigation and nutrition. This can hinder projects from adopting a systems perspective on agricultural development.

These two limitations highlight the need for greater coordination, both within the World Bank's Global Practices and across their projects, as well as between the World Bank, countries, and local stakeholders.

OPEC Fund for International Development

The OPEC Fund for International Development (OPEC Fund) is a multilateral development finance institution established in 1976 by the Member States of the Organization of the Petroleum Exporting Countries (OPEC). The OPEC Fund's core mandate is to drive development, strengthen communities, and empower people in developing countries beyond its membership. While originating from OPEC, the OPEC Fund functions as an independent entity with a distinct focus solely on international development.

The OPEC Fund provides a range of financial instruments to support development. The OPEC Fund has significantly increased its development financing in recent years, committing \$1.7 billion in 2023 and \$2.3 billion in 2024.¹²⁴ Public sector lending forms the central pillar of its operations, accounting for more than two-thirds of total cumulative commitments. These loans are often concessional. The Fund also offers private sector financing to encourage the growth of productive private enterprise in developing countries and support the development of local capital markets. Grants form a smaller component, used primarily for technical assistance, capacity building, feasibility studies, emergency relief, and specific targeted initiatives.¹²⁵

Relevance for scaling innovations at agriculture-food-climate nexus

In 2024, the OPEC Fund tripled its commitments to the agriculture sector compared to 2023, committing US\$261 million. The Fund supports the scaling of agricultural advancements primarily through financing essential infrastructure (energy, transport, and water) and a variety of other agricultural development projects.

Climate action is increasingly central to the OPEC Fund's strategy. In 2022, it developed a Climate Action Plan and has a target of dedicating at least 40% of all new financing to climate action by 2030.¹²⁶

Its increased focus on climate shapes its agriculture portfolio, which finances climate-smart agriculture techniques, climate-resilient crops, efficient water management and irrigation, climate-resilient rural infrastructure, and projects linking sustainable energy access with agricultural productivity. Example efforts include:

- Providing a \$20 million loan in 2024 to Phase II of the Shire Valley Transformation Program in Malawi, which aims to boost agricultural productivity and resilience through sustainable irrigation and natural resource management.¹²⁷
- Launching a sustainability-linked financing initiative in 2024 that provided a \$40 million loan to ETC Group to strengthen food systems and support smallholder farmer livelihoods across sub-Saharan Africa.¹²⁸

Limitations in scaling innovations

Scale: While growing, the OPEC Fund's overall annual commitments are smaller than those of major global MDBs, limiting its individual capacity to fund very large-scale or global scaling initiatives.

Predominance of Loans: The reliance on loans, even if concessional, means support is often geared towards government-backed projects or those with clearer financial returns, such as the loan to ETC Group.

Dependence on Government Partners: Similar to institutions like IFAD, the focus on public sector lending means the success and scaling of interventions often depend heavily on the capacity, ownership, and policy environment within partner country governments.

Project Focus: As with other institutions, the fund operates through providing loans and grants for relatively short, time-bound projects that often focus on generally strengthening the value chain for a commodity or food security and production of a region. They generally do not support longer-term, systems-focused programs focused on enabling sustainable scaling of specific innovations.

African Development Bank

The African Development Bank (AfDB) is a multilateral development bank focused on spurring sustainable economic growth and social progress across African countries. It primarily supports agriculture through the African Development Fund (ADF). ADF contributes to poverty reduction and socio-economic development in low-income African countries by providing concessional loans and grants for projects, programs, and technical assistance for studies and capacity-building activities.

Relevance for scaling innovations at agriculture-food-climate nexus

ADF and AfDB more generally support significant agricultural work. AfDB recently elevated agriculture as a key priority sector, including it in AfDB's "High 5" strategic areas under its ten-year strategy, "Feed Africa." AfDF has significantly contributed to agricultural improvement in the region. Under Feed Africa, it supported 100,000 people in adopting improved agricultural practices and providing agricultural inputs. During its 14th Replenishment, ADF14, it also provided access to new technology to over 40 million people and supported improved water management on nearly 200,000 hectares, thereby improving agricultural productivity.

Relatively little of its agricultural spending, however, directly supports crop or livestock production. In 2018, ADF disbursements for agriculture totaled approximately \$231 million, predominantly allocated towards agricultural policy and administrative management (69%) and rural development (10%), followed by food crop production (8%).¹²⁹

To attract private-sector investment, the ADF introduced the Private Sector Credit Enhancement Facility in 2015, aiming to mobilize resources and address market failures in agriculture and other sectors.

Limitations in scaling innovations

Despite significant resource commitments and strategic prioritization, the ADF faces challenges in effectively scaling agricultural innovations.

Country readiness: Nearly half of ADF's client countries are fragile states, where governance, conflict, institutional weaknesses, and external shocks such as climate crises present significant operational hurdles.

Project management quality: Evaluations have identified weaknesses in the ADF's project implementation, monitoring, and evaluation systems, with concerns about compliance, transparency, and the accuracy of self-assessments. Agriculture projects specifically suffer from

implementation delays averaging 33 months, attributed to underestimated infrastructure costs, overestimated technical readiness, and insufficient institutional capacity.¹³⁰

GAFSP

The Global Agriculture and Food Security Program (GAFSP) takes a broad, comprehensive approach to agricultural development financing. Launched by the G20 in the wake of the 2007–08 food price crisis, GAFSP is a multilateral partnership that provides financing and technical assistance to improve food and nutrition security in low-income countries. It has deployed more than \$2.5 billion to support over 300 projects, reaching about 20 million people. GAFSP provides grants, technical assistance, concessional finance, and advisory services to projects across the food chain. Of the \$2.5 billion, the portfolio includes over \$1.6 billion in grants to countries; \$493 million in concessional funding, blended finance, and other financing for private sector development; and \$46.4 million in small-scale grants and other support to farmers' or producer organizations.¹³¹ Given that the United States provided over one-third of public sector support to GAFSP, cuts to USAID funding may significantly reduce GAFSP's budget.¹³²

Compared to other institutions, GAFSP has a holistic, flexible, and demand-driven approach. Rather than focusing on a single aspect of agricultural development, GAFSP enables farmer organizations, governments, and businesses to design and implement interventions that are best suited to their context, in partnership with GAFSP's *supervising entities*. These include MDBs (AfDB, ADB, IADB, WB/IFC), IFAD, FAO, and WFP. Investments can meet multiple needs and address cross-cutting priorities. This comprehensive approach recognizes that building resilient and sustainable agricultural systems requires interventions at multiple levels — from individual farmers to national policies. Supervising entities have found GAFSP's grants helpful in expanding their efforts focused on smallholder agriculture, particularly technical assistance and capacity building.¹³³ GAFSP also places strong emphasis on engaging stakeholders, particularly civil society organizations, who have three non-voting seats on the GAFSP Steering Committee, the institution's primary decision-making body.¹³⁴

Unlike many other multilateral efforts, GAFSP can provide direct support to producer organizations, NGOs, and the private sector. Its “producer organization-led financing track” was introduced in 2020. Through it, farm organizations can partner with a GAFSP supervising entity to apply for grants. Though this financing track remains small — GAFSP announced \$34 million in funding in 2023 — it is growing and demonstrates a different approach to multilateral aid.¹³⁵

Relevance for scaling innovations at climate-food-agriculture nexus

A substantial share of GAFSP funding is directed at agricultural climate adaptation or productivity growth. GAFSP reports in their 2023 Annual Report that 48% of its total commitment of \$282 million in 2023 generated climate co-benefits, with 77% of that contributing to adaptation and 23% to mitigation.¹³⁶ Climate-related project activities included increasing access to climate-resilient seed varieties, promoting intercropping practices, and improving the efficiency of irrigation. In addition, according to the 2023 Annual Report, 31% of GAFSP's investment portfolio falls under the theme "raising agricultural productivity and improving climate resilience." 10% fell under the theme "increasing nutritional intake and adopting high-yield and innovative technology." These funds helped, among other things, to increase adoption of new technologies on nearly half a million hectares in 2024.¹³⁷

An example of the climate-related projects they fund is the Integrated Agricultural Productivity Project in Bangladesh. The project, running from 2011 to 2016, received \$50 million to enhance the productivity of crops, livestock, and fisheries in northern and southern Bangladesh. Among other activities, the project funded the Bangladesh Rice Research Institute's development and release of high-yielding rice varieties, including drought-, salinity-, and flood-tolerant varieties; on-farm demonstrations of rice production techniques; promotion of various rice production technologies such as deep placement of NPK briquettes; installation of buried pipe irrigation systems; and farmer-to-farmer seed exchanges. The project helped advance climate adaptation and mitigation by increasing adoption of buried pipe networks, which reduced water losses by 22.4%, and adoption of alternate wet and dry irrigation methods, which lowered methane emissions from rice fields. The project ultimately increased yields of boro rice by more than 15% from 5,450 kg/ha to 6,300 kg/ha, in addition to increasing fishery and dairy productivity.¹³⁸

Limitations in scaling innovations

Broad focus: GAFSP projects generally do not purely focus on scaling development, commercialization, and adoption of innovations, but rather, as their 2023 Annual Report notes, "combine a focus on gender, nutrition, and climate resilience in their interventions."¹³⁹

Reliance on implementing agencies: GAFSP's support for innovations is limited by the willingness of implementing agencies and co-funders (such as the World Bank, IFAD, FAO, AfDB, ADB, and others) to support them and is driven by the national goals of the partner countries. While this demand-driven approach ensures that investments are tailored to the specific needs and environment of each country, it can also limit GAFSP's ability to pursue regional, multi-country projects and support interventions that may be effective but are not prioritized by recipient countries.

AgResults

AgResults is a multilateral collaborative initiative between the governments of Australia, Canada, the United Kingdom, the United States, the Bill and Melinda Gates Foundation, and the World Bank Group to incentivize the private sector to increase smallholder adoption of agricultural innovations. Established at the 2012 G20 Summit in Los Cabos, AgResults — with \$152 million in pledged funding — employs pay-for-results prize competitions to motivate private sector actors to invest in high-impact projects that address food insecurity, improve household nutrition and health, and increase livestock productivity. This initiative marks a significant departure from traditional development funding mechanisms.

The theory of change underlying AgResults is that appropriate incentives can trigger private sector engagement in areas that benefit smallholder farmers but where market failures have prevented success. Unlike conventional “push” funding approaches that finance inputs and activities in advance in expectation of specific outcomes, AgResults employs a “pull” mechanism that pays for achievement of pre-defined, verifiable outcomes. This approach shifts risk to the implementing partners while ensuring that donor funds are spent efficiently. Another advantage is that the prize competition structure is process-agnostic — funders do not need to predict which specific approaches will yield the desired results. This flexibility allows innovators to experiment with diverse methods, potentially leading to unexpected but effective solutions.¹⁴⁰

Relevance for scaling innovations at agriculture-food-climate nexus

AgResults has implemented various projects targeting specific agricultural challenges. For example, the Kenya On-Farm Storage Challenge Project was a multi-year, \$7.75 million program that used pay-for-results prizes to encourage the adoption of on-farm storage solutions, reducing post-harvest losses for smallholder farmers. Participating companies ultimately sold nearly 1.4 million improved grain storage devices over a three-year period, avoiding the post-harvest loss of grain worth an estimated 1.38–2.3 billion Kenyan shillings.¹⁴¹

Limitations in scaling innovations

Despite its innovative approach, AgResults faces several constraints.

Modest Funding Scale: Although the prize-based mechanism is innovative, the relatively small individual awards may not provide sufficient capital to carry an innovation from proof-of-concept to full-scale market adoption. This can leave promising solutions underfunded for long-term scaling. In many cases, additional financial support or complementary interventions (such as policy changes or infrastructural investments) are necessary to scale an innovation beyond the pilot phase.¹⁴²

Systemic Gaps Remain Unaddressed: The initiative's effectiveness is limited to challenges that can be framed as market opportunities with clear, measurable outcomes. Complex agricultural problems with diffuse benefits, long timeframes, or requiring infrastructural or systemic change may be difficult to address through this model. Such issues often require sustained investment and support beyond one-off prizes.

Fragmented Impact: The focus on individual competitions can lead to a collection of isolated innovations rather than integrated, systemic change. Coordinating these discrete breakthroughs into a cohesive, scalable system may demand additional mechanisms and partnerships.

Barrier to entry: Additionally, the competitive nature of the initiative may inadvertently exclude smaller local enterprises that lack the capital reserves necessary to invest in solutions before receiving payment.

World Economic Forum's Food Innovation Hubs

Developed and co-led by the World Economic Forum (WEF), the Government of the Netherlands, and the Government of the United Arab Emirates (Mohammed bin Rashid Al Maktoum Global Initiatives), the Food Innovation Hubs Global Initiative (FIHGI) aims to strengthen agricultural and food innovation ecosystems through multi-stakeholder partnerships. The initiative operates through two programs. The Food Innovators' Network connects and convenes leaders and practitioners globally. Its initial focus is on advancing protein innovation and improving soil quality. The Food Innovation

Hubs is a network of country hubs hosted by organizations with in-country agricultural expertise. These hubs bring together diverse stakeholders to identify technological innovations, create an enabling environment, and mobilize resources to implement regional projects. Through doing so, the initiative aims to expand the portfolio of investment-ready innovation projects and increase overall investment.

Relevance for scaling innovations at agriculture-food-climate nexus

FIHGI explicitly aims to support scaling of technological innovations by providing the following functions:

- Partnership Brokering and Catalyzing Investment:** A core function is facilitating the formation of public-private-civic partnerships. These collaborations aim to pool resources, expertise, and market access to tackle specific food system bottlenecks and deploy innovative solutions. By connecting innovators with potential funders, the hubs also aim to unlock capital flows needed for scaling
- Developing Scaling Strategies and Shaping Policy:** WEF leverages its global influence to convene high-level leaders and diverse stakeholders, providing a forum for discussing policy and regulatory barriers to innovation. They facilitate dialogue between innovators, businesses, and policymakers to shape an enabling environment that supports the adoption and scaling of new agricultural technologies and practices.
- Learning and Knowledge Sharing:** The global initiative connects individual hubs, allowing for the sharing of successful models, technologies, policy approaches, and lessons learned across different contexts. This facilitates cross-regional learning and adaptation of innovations.

In addition, FIHGI has developed and promotes a framework for scaling innovations informed by its experience with its six hubs. This framework includes identifying innovation opportunities, building partnerships, designing a business case, developing innovation packages, identifying resource needs, implementation, and scaling.

Like many efforts, the initiative convenes a variety of stakeholders from across sectors. However, a distinguishing feature is WEF's ability to involve multinational corporations and large domestic companies, which possess significant resources, market reach, and supply chain influence that

is crucial for scaling innovations. For example, the Colombia hub established a potato and barley intercropping pilot project, managed by CIAT, with products and technical assistance provided by Microsoft, Anheuser-Busch, Bayer, and PepsiCo.

Though the initiative does not explicitly aim to advance climate adaptation or mitigation, several of its six hubs focus on low-emissions agriculture or adaptation. For example, the hub in Viet Nam, established by the Ministry of Agriculture and Rural Development, focuses on scaling up adoption of high-quality and low-carbon rice on 1 million hectares. This effort includes coordination across multiple ministries, international organizations, and other initiatives focused on low-carbon rice, such as the Partnership for Sustainable Agriculture in Viet Nam and the World Bank's low-carbon rice programs.¹⁴³

Limitations in scaling innovations

However, its effectiveness in scaling innovations equitably and sustainably depends on its ability to bridge the gap between partnership formation and widespread adoption on the ground.

Limited geographical scope: The six existing hubs focus on one country each. This reflects limited global coverage and limits the ability of FIHGI to catalyze multi-country, regional projects.

Fragmented focus: Each hub focuses on local agrifood challenges and innovations. While this helps ensure projects are tailored to the local context, it hinders the ability of the FIHGI to advance industry-wide improvement, commercialization, or adoption of innovations. This can be valuable for innovations that benefit from economies of scale or learning curves.

Reliance on funders: The hubs generally do not have the financial resources to implement scaling strategies and instead must rely on external donors and financial institutions.

Reliance on implementers: Translating high-level commitments and partnerships forged within the hubs into tangible, scaled impact on the ground can be challenging. Success often depends heavily on the capacity, resources, and sustained commitment of local partners

Risk of corporate dominance: Given the WEF's strong ties to large corporations, there is a potential risk that the agenda and priorities within hubs could disproportionately reflect corporate interests over those of smallholder farmers or be perceived in such a manner.

Reliance on host expertise: Sourcing and assessing innovations for scaling readiness requires expertise in finance, innovation scaling, and relevant scientific fields. This expertise may be more difficult to secure in the FIHGI's decentralized hub model than in a more centralized

approach or one that provides technical assistance for each stage of scaling.

ENDNOTES

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