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CONFERENCE

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Executive Summary

Transforming agrifood systems is essential for achieving global food security and improved nutrition.

The Strategic Framework 2022-31 of the Food and Agriculture Organization of the United Nations (FAO) puts at its centre the transformation to MORE efficient, inclusive, resilient and sustainable agrifood systems for *better production, better nutrition,* a *better environment, and* a *better life* - leaving no one behind. Innovation, as one of four cross-cutting accelerators applied in all FAO programmatic interventions, in general and in particular in agriculture, is a central driving force for achieving a world free from hunger and malnutrition.

Science-driven innovations are key to realizing this ambitious goal. However, to make this vision a reality, innovations must be supported by strong institutions, effective governance, sound policy and regulatory frameworks, political commitment and measures that promote equity among all agrifood systems actors. Sustained investment in transformative innovations remains a critical strategy.

Scaling up and expanding the reach of innovations, alongside increased investment, is vital not only to eliminate hunger and poverty but also to address the growing challenges of our time. From the rising frequency and intensity of extreme weather events to pandemics, economic downturns and conflicts, science-based and financial innovations are essential to building agrifood systems that can withstand multiple crises.

FAO actively supports agrifood innovation through both its field projects and normative work. Its programmatic interventions incorporate technological, social, policy, institutional and financial dimensions – often combined strategically as bundled innovations – to drive transformation in diverse contexts. This document provides further details on these efforts and explores the key barriers and enablers to scaling up innovations and technologies, highlighting their role as a pathway to accelerate transformative change.

Suggested action by the Conference

The Conference is invited to review the information in this document and provide guidance as deemed appropriate.

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I. Introduction

1. Global hunger and malnutrition remain pressing challenges, with the number of undernourished people still significantly above pre-pandemic levels. According to the State of Food Security and Nutrition in the World (SOFI) report of the Food and Agriculture Organization of the United Nations (FAO), approximately 733 million people faced chronic hunger in 2023. The drivers of food insecurity are increasingly complex and interconnected – climate extremes, economic slowdowns, pandemics such as COVID-19, and prolonged conflicts continue to disrupt agrifood systems. These shocks disproportionately impact vulnerable populations, exacerbating poverty, inequality and nutritional deficiencies, particularly in low- and middle-income countries (LMIC).

2. Transforming agrifood systems is essential to achieving global food security and nutrition, especially in a world facing escalating risks and uncertainties. The FAO Strategic Framework 2022-31 puts at its centre the transformation to MORE efficient, inclusive, resilient and sustainable agrifood systems for *better production, better nutrition,* a *better environment, and* a *better life* - - leaving no one behind. Innovation, as one of four cross-cutting accelerators applied in all FAO programmatic interventions, in general and in particular in agriculture, is a central driving force for achieving a world free from hunger and malnutrition.

3. As highlighted by FAO, this transformation must address the dual challenge of feeding a growing population while safeguarding natural resources and building resilience to shocks. Sustainable agrifood systems optimize resource use, reduce environmental degradation, ensure equitable access to safe and nutritious food, and support inclusive economic growth and employment. Investing in resilient agrifood systems can reduce vulnerability to climate extremes, pandemics, economic downturns and conflict-related disruptions. To realize this transformation, science-based innovations, inclusive policies and increased financing are critical to building systems that are efficient, equitable and crisis-resilient.

II. Innovation as a catalyst for food security

4. Developing and scaling science driven innovations[1] is fundamental to accelerating the transformation of agrifood systems and fostering global food security.[2,3] Innovations hold the key to effective interventions that end hunger and malnutrition, particularly when complemented by strong institutions, good governance, political will, regulatory frameworks and measures promoting equity among agrifood systems actors. Rural areas, where agriculture, fisheries and forestry are the main sources of employment, play a vital role in sustaining livelihoods and driving local economies. These sectors offer significant potential for inclusive growth and development. By investing in transformative agrifood innovations, we can unlock this potential – enhancing productivity, creating decent jobs and improving incomes – while accelerating progress toward reducing poverty and achieving food security in rural communities.

5. Global agricultural productivity growth has slowed by 63 percent over the 2013-2022 period, down from an average of 1.9 percent during 2001-2010.[4] From this perspective, the widespread slowdown in the growth of public agrifood research and development (R&D) spending over more recent years raises concerns. Balancing this trend, private sector investment in agrifood R&D has

[1] Innovation is the process whereby individuals or organizations bring new or existing products, processes or ways of organization into use for the first time in a specific context to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability and thereby contribute to food security and nutrition, economic development or sustainable natural resource management. (FAO. 2022. *Science and Innovation Strategy*. Rome)

[2] United Nations: Global Sustainable Development Report (2019), FAO: FAO and the Sustainable Development Goals (accessed from the web)

[3] Herrero *et al.* (2020). Innovation can accelerate the transition towards a sustainable food system. *Nature Food, Vol. 1*, pp. 266-272

[4] Agnew, J. & Nakelse, T. (2024). T. Thompson (Ed.) *2024 Global Agricultural Productivity Report: Powering Productivity: Scaling High Impact Bundles of Proven & Emerging Tools*. Virginia Tech College of Agriculture and Life Sciences.

increased substantially since 1980, resulting in a threefold increase in overall R&D spending from USD 40.5 billion in 1980 to USD 109.7 billion in 2020. As a result, private sector agrifood R&D investments represented 49 percent of the global total, up from 37 percent in 1980.

6. The decline in public agrifood R&D investments warrants reconsideration as it plays a key role in setting policy frameworks, investing in basic sciences and in topics where market-driven investments have less traction or present risks (for example, innovations and technologies for small-scale producers and agroecological production systems). These trends in public R&D investments are at loggerheads with evidence that they yield substantial social payoffs in terms of livelihoods and food security. On average, every dollar invested in agrifood R&D has generated USD 25.1 in high-income countries (HICs), and USD 23.0 in LMIC over the past 50 years.[5]

7. While agrifood R&D investments by high-income countries have slowed down, those by upper middle-income countries (UMICs) have increased substantially, with Brazil, China and India leading. As a result of these structural shifts in R&D spending patterns, the share of agrifood R&D investments by HICs has decreased from 63.7 percent in 1980 to 48.6 percent in 2020, while that of middle-income countries (including UMICs) increased from 35.3 percent to 50.4 percent. Unfortunately, chronic underinvestment in agrifood R&D by low-income countries remains an issue, notably in the case of sub-Saharan Africa, which accounted for a paltry 3.2 percent of global agrifood R&D in 2020. This region remains overly dependent on spillovers of technologies from HICs and UMICs to drive productivity enhancing agrifood innovation.[6] The inappropriateness of these technological spillovers limits the ability of scaling innovations beyond the contexts in which they have demonstrated initial success.[7]

8. Digital technologies, biotechnologies, nanotechnologies, agroecology, renewable energy and transportation, mechanization, geospatial technologies, water management, and nutrition and food processing are all areas in which enormous progress has been made thanks to recent advances in science and technology.

9. Specifically, digital technologies, including automation, hold significant promise for increasing efficiency, productivity, sustainability and resilience across agrifood systems. However, to fully realize their potential, inclusive investments are essential. These investments must actively engage producers, manufacturers and service providers – especially women and youth – to develop technologies that are responsive to the needs of end users. Achieving an inclusive digital transformation also requires strengthening the digital agriculture innovation ecosystem, investing in Digital Public Infrastructure, and ensuring affordable access to meaningful rural digital services such as finance, insurance, and education. Promoting digital public goods is vital to make these technologies accessible to small-scale agricultural producers. A key challenge lies in tailoring technologies to local contexts, fostering local innovation, and building the capacity of producers to adopt, adapt and effectively use new tools and approaches.

10. Artificial Intelligence (AI) has the potential to revolutionize agrifood systems by processing vast volumes of data, enabling complex analysis and generating optimized, evidence-based solutions. To fully harness these capabilities in a way that is equitable and effective, it is critical to develop appropriate institutional frameworks, regulatory mechanisms and a science-based understanding of the social, economic and behavioural factors that influence AI adoption. These measures are particularly important to ensure the inclusion of all farmers – regardless of their size or geographic location – especially in regions where data infrastructure and investment remain limited. [8]

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[5] Hurley, T.M., X. Rao and P.G. Pardey. (2014). Re-examining the Reported Rates of Return to Food and Agricultural Research and Development. American Journal of Agricultural Economics 96(5):1492-1504.
[6] Pardey, P.G., C. Chan-Kang, G-J Stads, Y. Chai, J.M. Alston, J. Greyling and H. Muñoz. 2025. "Seismic Shifts in the Global Agri-Food R&D Landscape" InSTePP Working Paper. St. Paul: Department of Applied Economics, University of Minnesota (forthcoming).
[7] Moscona and Sastry. (2022). Inappropriate Technology: Evidence from Global Agriculture. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3886019
[8] Alexandrova-Stefanova et al. (2024): Harversting Change. Harnessing emerging technologies and innovations for agrifood system transformation.

11. FAO is actively advancing this agenda through the development of a Digital Agriculture and AI Innovation Roadmap, which outlines priority use cases, project selection criteria and principles for ethical and inclusive governance. This roadmap is informed by ongoing consultations with public and private stakeholders. From a scientific standpoint, AI technologies can be categorized into artificial narrow intelligence (ANI), artificial general intelligence (AGI), and artificial super intelligence (ASI).[9] Currently, applications in agriculture operate within the ANI category – task-specific systems capable of delivering tangible benefits in areas such as yield prediction, precision farming and supply chain optimization. As the field advances towards AGI and eventually ASI, it is imperative for food security stakeholders to proactively scale the use of existing ANI tools while preparing for the transformative changes AGI and ASI may bring. This includes embedding ethical safeguards, such as those outlined in the Rome Call for AI Ethics – a framework endorsed by FAO and other leading organizations – to ensure that AI development remains aligned with human dignity, environmental sustainability, and inclusive progress.

12. Biotechnologies have significantly contributed to increased agricultural productivity by enabling the development of crops with improved yields, pest resistance and drought tolerance. These advancements have helped farmers reduce costs, improve control over pests and diseases and adapt to changing environmental conditions. When appropriately integrated with other technologies to produce food, agricultural products and services, biotechnology can be of significant assistance in meeting the needs of an expanding and increasingly urbanized population. However, biotechnologies have not sufficiently benefited smallholder farmers, producers or consumers. More research and development of agricultural biotechnologies should be focused on the needs of smallholders.

13. Traditional knowledge is increasingly valued for its contributions to daily life, modern industry and agriculture. Emerging from dynamic innovation over generations, it provides a wealth of experience, practical skills and local insights that can be used to develop sustainable and context-specific solutions. This knowledge, often held by Indigenous communities and small-scale producers, offers a deeper understanding of local ecosystems, resources and farming practices, which can be leveraged to create more resilient and inclusive agrifood systems. Many products like plant-based medicines, health products, cosmetics, agricultural goods and handicrafts are derived from it. Indigenous Peoples and local communities, often found in areas with rich genetic resources, have sustainably managed biodiversity for thousands of years. Their practices enhance local biodiversity and support healthy ecosystems, and offer valuable insights into global biodiversity policies.[10]

14. Community-driven innovations are necessary and must be combined with science-led innovations. Rural communities are a largely untapped reservoir of innovations that still need to be supported and scaled, opening enormous opportunities for new cooperation and investments. Around the world, rural communities are creating ever-more effective solutions that are culturally relevant, socially just and practically effective in addressing farmers' daily challenges and ensure environmental sustainability. For instance, the farmer-managed Natural Regeneration technique in Niger, the Zai Pit system in Burkina Faso, or the integrated Crop-Livestock-Aquaculture systems in Viet Nam were developed by local communities to maximize resource efficiency, create symbiotic relationships between crop production, livestock rearing and fish farming, reducing waste and increasing overall farm productivity and food availability.

15. Institutional innovations create new rules and methods to organize relationships between actors within a system. These changes happen through strategic engagement to reform or replace existing institutions, essential for sustainable, inclusive and resilient agrifood systems. Approaches like living labs, innovation partnerships, participatory research and public-private partnerships bridge gaps between science, agribusiness and development.

[9] Saghiri et al.(2022): A Survey of Artificial Intelligence Challenges: Analyzing the Definitions, Relationships, and Evolutions. *Applied Sciences*, 12, Article 4054.

[10] The Secretariat of the Convention on Biological Diversity (2025): Traditional Knowledge and the Convention on Biological Diversity (accessed from the web).

16. Promoting cooperation through integrated approaches is key. Multistakeholder co-innovation emphasizes inclusive, transparent and open innovation for various stakeholders. Extension and Advisory Services have shifted from centralized models to pluralistic systems involving private sector entities, non-governmental organizations and farmer organizations, enhancing knowledge sharing. Improved inter-institutional coordination ensures diverse actors contribute to research and strategic directions. These innovations are crucial for transforming isolated institutions into cohesive agrifood systems that address food insecurity, climate change and social inequalities.

17. Policy innovations are essential for addressing urgent issues like increase in frequency and intensity of climate events and other structural issues behind food insecurity. An example is the FAO-endorsed Innovation Policy Labs, which promote co-innovation of policies within a multi-actor framework using UN 2.0 capabilities. These labs aim to break implementation barriers by incorporating diverse perspectives and ensuring policies are practical, future-proof and evidence-based. Other innovations include integrated policies, participatory governance, investments in human capital and real-time feedback systems. Combining policy with technological, social and institutional innovations can facilitate a just and sustainable transition, leading to adaptive strategies for sustainable agrifood systems.

18. Transformative change in agrifood systems demands sustained, coordinated investment across the entire value chain – from smallholder farmers to global value chains – and across interconnected sectors such as climate, nutrition, biodiversity and livelihoods. Financial innovation plays a critical role in enabling this transformation by shaping incentives, mobilizing resources and aligning diverse stakeholders behind shared goals. Emerging mechanisms like blended finance, results-based financing, innovative catastrophic insurance, parametric insurance and climate-aligned instruments can amplify the impact of public funds, reduce investment risks and attract private capital at scale. These tools empower development actors to act as convenors and catalysts, supporting countries in designing integrated financing strategies that turn ambition into execution and ensure outcomes that are both sustainable and equitable.

19. Accelerating the transformation of agrifood systems requires developing and scaling radical, rather than incremental, innovations. Creating an enabling environment for leveraging the creativity and effort of innovative actors – including public research organizations, agrifood producers, the private sector and financial institutions – has been a critically important strategy promoting agricultural innovation systems[11] capable of triggering the transformation of agrifood systems.[12] However, to transform faster and at scale, a system innovation approach is required, whereby rather than fragmenting scarce funding across multiple innovations, efforts are instead focused on strategic innovation portfolios that bundle a coherent set of innovations to achieve ambitious development objectives.

20. Identifying future trends, drivers and triggers of change – and anticipating paradigm shifts – is essential for building resilient agrifood systems. Foresight empowers stakeholders to make informed decisions today that shape the direction and pace of transformation, ensuring preparedness for emerging challenges. Key drivers such as climate-related, population dynamics and economic growth intersect with innovation trends focused on a blend of efficiency, democratization and sustainability. Triggers, such as governance coherence, skills alignment and societal consensus can accelerate or hinder progress. Technological convergence, biomimicry, open innovation and citizen science are some of the paradigm shifts thar are redefining how science and technology are applied. To harness these shifts for impact, inclusive, anticipatory and co-innovative approaches that move beyond siloed institutional practices are needed.

[11]Agricultural innovation system has been formally defined as a network of actors or organizations, and individuals, together with supporting institutions and policies in the agricultural and related sectors, that brings existing or new products, processes, and forms of organization into social and economic use (FAO. 2022. *Assessing agricultural innovation systems for action at country level - A preliminary framework.* Rome)

[12] Toillier, A., Mathé, S., Saley Moussa, A., & Faure, G. (2022). How to assess agricultural innovation systems in a transformation perspective: a Delphi consensus study. *The Journal of Agricultural Education and Extension*, *28*(2), pages 163-185.

21. FAO supports agrifood innovations across its programmatic interventions, including projects implemented in the field, as well as normative work. FAO programmatic interventions leverage technological, social, policy, institutional and financial dimensions, including in strategic combinations (also referred to as bundled innovations) to advance its strategic vision across diverse contexts. Some examples include:

a. GeoTech4Tenure is an example of innovation that integrates geospatial technologies (like drones, satellite imagery and mobile GPS apps) with community-based land mapping. It is the result of a collaboration of FAO and the International Fund for Agricultural Development (IFAD), which empowers local people to document land rights by themselves and shows how high-tech tools can be blended with participatory approaches to strengthen tenure security and reduce land conflicts.

b. Sara Bangla Krishak Society (SKBS) ACCESS Program in Bangladesh builds a peer-to-peer learning ecosystem among farmers, especially women, through farmer-led training in digital, financial, leadership literacy and Farmer Field Schools. By promoting virtual call centres, e-marketplaces (e-Arat) and innovation hubs, it fosters inclusive community-based learning and empowerment, especially for marginalized groups.

c. The Forest Reference Emission Level (FREL) policy tool enables Zimbabwe to join REDD+ and access climate finance. It establishes a national baseline for deforestation-related CO_2 emissions, incorporating satellite monitoring and geospatial analysis, and it reflects policy innovation by embedding science-based metrics into national climate strategies.

d. The Legal Hub under the Sustainable Wildlife Management Programme redefines institutional capacity by equipping countries with tools and processes to reform legal and governance systems related to wildlife and agrifood sectors. It strengthens governance structures across 15 countries by promoting integrated, evidence-based and inclusive legal frameworks – in line with FAO's strategy to reinforce institutional effectiveness, support national capacities and promote sustainable natural resource management.

e. The 17 Asset Management's Blended Financing Funds in the Caribbean initiative introduces a USD 100 million growth capital fund and a USD 25 million innovation fund to bridge the "missing middle" financing gap for agrifood enterprises in the Caribbean. By combining private capital, public investment and advanced data-driven targeting (e.g. Agtech, AI and climate-smart strategies), it unlocks financing for ventures typically overlooked by traditional banks.

f. The Globally Important Agricultural Heritage Systems (GIAHS) exemplify the bundling of innovations by combining technological (e.g. drone mapping), social (community-led action plans), institutional (multilevel governance) and policy innovations to preserve traditional agricultural systems, while enhancing climate resilience. Integrated with the Climate Risk Toolbox, it supports evidence-based planning and cross-sector collaboration, aligning directly with the FAO Science and Innovation Strategy pillars on local adaptation, inclusive development and sustainability.

III. Unlocking Agrifood Innovation: Barriers, Enablers and Pathways to Impact

22. Agrifood innovation plays a critical role in achieving sustainable development, yet its application for sustainable impact is uneven, particularly in LMICs. Understanding the barriers and enablers to innovation uptake as well as the use of innovations and technologies at scale, is key to accelerating transformative change.

23. Innovation from both formal and informal, public and private, national and international agrifood research agencies is key to enhancing productivity, sustainability and resilience. However, turning discoveries into widespread impact is a slow process. Innovation uptake is unevenly distributed, often disadvantaging marginalized groups like small-scale producers, women and youth,

especially in LMICs. Among many, financial, infrastructural, educational and institutional barriers limit the adoption of innovations, particularly in low-income countries.

24. Disparities in accessing innovation and technologies exist. Smallholders in LMICs frequently lack access to key innovations. Sub-Saharan Africa lags substantially behind world average standards in terms of access to agricultural inputs and services, and agricultural R&D. Many technologies remain unaffordable, inaccessible or unsuitable for local conditions, perpetuating food insecurity and productivity gaps.

25. Overt challenges hindering innovation, like lack of access or insufficient knowledge and capacities of agrifood systems actors in LMICs to innovate, represent critical barriers that must be addressed *a priori* for the spark of innovation to ignite, grow and spread.[13] In addition, more hidden impediments – like psychological, social or otherwise environmental/physical barriers – can also snuff out the flames of innovation and constrain the creation of innovation-friendly environments.

26. Agrifood R&D has delivered enormous long-term benefits, and return on investment is exceptionally high, yet the time from invention to impactful adoption often spans 15-25 years. Formal agrifood R&D systems often follow a linear innovation model and exclude informal innovators and agrifood entrepreneurs. In crop breeding for example, up to 50 percent of budgets are used for maintenance research, leaving limited room for transformation.[14] Moreover, many national agricultural innovation systems (AIS) remain fragmented, with institutional silos and focus solely on productivity, ignoring broader food system challenges such as equity, nutrition and sustainability.[15] To meet pressing global challenges such as climate change, food insecurity and sustainability, it is both urgent and feasible to foster innovation processes and systems that are user-driven and inclusive, enabling the rapid development of solutions that effectively meet users' needs.

27. Behavioural science can help identify cognitive biases, social norms and psychological barriers that prevent the adoption or creation of new ideas, practices and technologies. Factors like ingrained habits, fear of failure, lack of trust, choice overload and noise can be significant roadblocks to innovation.[16] By studying decision-making in specific environments – considering cultural influences, heuristics and social networks – behavioural science can uncover the unseen drivers of resistance to change, explaining why innovations often fail.

28. To effectively scale agrifood innovations, it is imperative for policymakers to adopt a comprehensive and multifaceted approach that encompasses environmental, social and economic considerations to ensure the sustainable impact of these innovations. This necessitates adapting innovations to specific contexts through participatory and inclusive processes, strengthening capacity of all stakeholders involved, building market linkages, promoting equitable access to these innovations and other productive resources, and establishing robust monitoring, evaluation and learning mechanisms to iteratively adapt strategies to continuously improve outcomes. In other words, innovation scaling requires well-functioning agricultural innovation systems at national, regional and international levels, with dedicated capacities at individual, organizational and institutional levels. [17]

IV. Agrifood Innovation: Policy Pathways and Priorities

29. Technological innovations have been instrumental in transforming farmers' livelihoods and will continue being so. Recent trends in technological, social, policy, institutional and financial innovations indicate that there is ample scope for leveraging novel ideas that help accelerate and scale

[13] Aerni, P., Nichterlein, K., Rudgard, S., & Sonnino, A. (2015). Making agricultural innovation systems (AIS) work for development in tropical countries. *Sustainability*, *7*(1), 831-850.
[14] (Sparger et al., 2013) Red Queen Effect in Crop Improvement Research.
[15] (Klerkx & Gaitán Cremaschi, 2025) Chapter 6: Evolving Agrifood Innovation Systems.
[16] (Kahneman, Sibony & Sunstein, 2021)
[17] Toillier, A., Mathé, S., Saley Moussa, A., & Faure, G. (2022). How to assess agricultural innovation systems in a transformation perspective: a Delphi consensus study. The Journal of Agricultural Education and Extension, 28(2), 163-185.

the transformation of agrifood systems towards achieving the Sustainable Development Goals, provided the necessary investments are made and reforms pursued.

30. To radically accelerate the transformation of agrifood systems, a mission-oriented approach to innovation systems needs to be pursued as part of which R&D funding should be repurposed in alignment with high order development challenges.[18] This will required addressing systemic barriers, enhancing institutional capacities to support co-innovation processes and aligning innovation with overarching goals such as equity, resilience and sustainability.[19] It will also require shifting to a portfolio approach to innovation management, whereby technological innovations are selected and bundled with financing models, advisory services, and institutional and policy reforms into coherent packages to accelerate the overall uptake and impact.[20]

31. The capabilities of agrifood innovation systems in underfunded regions, such as sub-Saharan Africa, must be strengthened, and R&D investments increased to adequate levels. This should prioritize locally relevant and inclusive innovation processes, supported by diverse funding mechanisms such as innovation levies, venture capital and private sector investment. Efforts should also include large-scale capacity development through education systems, universities, vocational training centres and private sector collaboration to build a skilled innovation workforce, generate employment and prepare for future sustainable agrifood systems.

32. UN 2.0 capabilities – such as data, digital tools, foresight and behavioural science – should be harnessed to foster inclusive innovation policies and institutional frameworks that ensure mutual partnerships, gender equality, smallholder relevance, and recognizes importance of local and indigenous knowledge systems. Innovation operates within specific contexts where it brings novelty and thus cannot flourish under business-as-usual policy and governance approaches.

33. Establishing foresight-driven, anticipatory policy frameworks that identify and respond to future trends, drivers and paradigm shifts – such as biomimicry, technological convergence, citizen science and open innovation – to build resilience guide inclusive transformation and ensure agrifood systems are prepared for emerging challenges and opportunities. This requires moving beyond reactive, business-as-usual approaches toward proactive, system-oriented governance that fosters co-innovation, inclusivity and sustainability.

34. Innovative efforts by local agrifood systems actors need to be recognized, supported, financed, documented and made sharable, including those of small-scale producers through knowledge-sharing platforms, innovation incubators, co-innovation mechanisms such as Living Labs, Farmer Field Schools or Farmer Research Networks, and legal protections. Ensuring mutual partnerships, gender equality, smallholder relevance and recognition of the importance of local and indigenous knowledge systems are key to revitalizing and democratizing agrifood innovation systems.

[18] FAO. 2023. *Comment créer un environnement plus favorable à l'innovation agricole au Burkina Faso? Une approche par le renforcement des capacités du système national d'innovation agricole.* Rome.
[19] Toillier, A., Guillonnet, R., Bucciarelli, M., & Hawkins, R. (2021). *Developing capacities for agricultural innovation systems: lessons from implementing a common framework in eight countries*. FAO
[20] Klerkx, L., & Begemann, S. (2020). Supporting food systems transformation: The what, why, who, where and how of mission-oriented agricultural innovation systems. *Agricultural Systems*, *184*, 102901.