Food and Agriculture Organization of the United Nations

TRANSFORMING FOOD AND AGRICULTURE THROUGH A SYSTEMS APPROACH

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GLOSSARY

Agrifood systems
Agrifood systems encompass the journey of food from farm to table – including how it is grown, fished, harvested, processed, packaged, transported, distributed, traded, purchased, prepared, consumed, disposed of and reused. They also include non-food products that support livelihoods, and all the people, activities, investments, and decisions involved in delivering these food and agricultural products (FAO, 2021a).

Agrifood systems resilience
The capacity over time of agrifood systems, in the face of any disruption, to sustainably ensure availability of and access to sufficient, safe, and nutritious food for all, and sustain the livelihoods of agrifood systems' actors (FAO, 2021b; Tendall *et al.*, 2015).

Agrifood systems transformation
The deliberate and ongoing process of changing how agrifood systems function towards the sustained improvement of multiple interconnected outcomes at scale, including agricultural productivity; nutrition and health; environmental sustainability; inclusive economic growth and livelihoods; and reduced inequalities. While transformation can be catalysed by shocks, it often emerges from the cumulative effect of actions that build over time. Through accelerating progress towards these goals, transformed agrifood systems would bring significant improvements for food security for current and future generations.

Co-benefit
A positive effect that a policy or measure aimed at one objective has on other objectives, thereby increasing the total benefit to society or the environment (IPCC, 2022).

Co-creation
A collaborative approach of creative problem solving between diverse stakeholders at all project stages (Vargas *et al.*, 2022).

Collective action
Coordinated efforts by a group of people or institutions to improve their situation and achieve a shared goal.

Feedback loop
A circular process where changes in a system or its elements lead to further changes in the same system, either reinforcing (positive feedback) or counteracting (negative feedback) the original changes, often with delays that affect how the system behaves over time.

Food security
A situation in which all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 1996).

Integrated policy approach
Where policies intentionally navigate synergies and trade-offs between different goals, recognizing challenges are interlinked and interdependent (United Nations Sustainable Development Group, 2023).

Interaction
A dynamic process in which elements of a system influence one another over time, through ongoing relationships or feedback loops, shaping how the system functions and what outcomes it produces.

Interconnection
The influence and interaction between multiple elements in a system. It is also referred to as interlinkages or relationships in systems literature (IPBES, 2024).

Interdependence
A situation in which one or more components in a system are dependent on another to function (IPBES, 2024).

Interrelated systems
The broader systems that agrifood systems both depend on and influence, such as environmental (e.g. land, water), energy, transport, health, economic, political and social systems. These interdependencies shape the ability of agrifood systems to deliver their intended purposes and outcomes.

Leverage points
Strategic places in a system where a small shift can produce significant, lasting changes. Taking action at a leverage point focuses on minimal intervention to have disproportionate impact.

Nexus
The interlinkages among two or more elements, sectors or systems (IPBES, 2024).

Outcomes of agrifood systems
In the context of agrifood systems, outcomes refer to the consequences of agrifood systems activities. Outcomes are shaped by the interconnections between components and include outcomes on food security, nutrition and health, environment, society and economy (derived from Stefanovic, Freytag-Leyer, and Kahl, 2020).

Pathways
Sequences of actions, decisions and enabling conditions that lead from the current state toward a desired future. Pathways help structure systemic transformation over time.

Policy coherence
In agrifood, this refers to the alignment of policies that affect the agrifood system with the aim of achieving health, environmental, social and economic goals, to ensure that policies designed to improve one agrifood system outcome do not undermine others (Parsons and Hawkes, 2019).

Political economy
The interaction of political and economic processes in society, including how power and resources are distributed among individuals and groups, and how these relationships evolve over time. It provides a lens for understanding decision-making, institutions and systems change.

Power dynamics
The distribution of decision-making power, authority, and both formal and informal influence among individuals and organizations.

Priority problem
A significant issue or situation that requires immediate attention due to its scale, severity or potential to undermine broader system performance.

Siloed approach
Addressing issues in isolation and without regard for interlinkages, resulting in potential misalignment, unintended consequences or trade-offs (IPBES, 2024).

Strategic entry point
A system element, relationship, or subsystem where targeted action can spark broader, lasting change across the system. A strategic entry point may also serve as a leverage point.

Subsystem
A dynamic and bounded set of interconnected components – including people, institutions, and activities– that work together to deliver specific functions within a larger system (e.g. input supply, school meal programmes and waste management systems). Subsystems interact with each other and contribute to the overall functions of the system.

Sustainable agrifood system
An agrifood system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised (HLPE, 2014).

Synergy
A situation in which the enhancement of a desirable outcome in one element leads to enhancement of another element (IPBES, 2024).

System
A set of interconnected components in dynamic interaction that deliver a number of outcomes (derived from Estrada, 2024).

Systemic change
Fundamental shifts in system structures and functions (Fazey and Colvin, 2023).

Systems approach
A method of solving problems and advancing solutions that considers the interconnections within and between systems to achieve sustained, systemic change at scale.

Systems thinking
A practice that focuses on understanding the dynamic interconnections within and between systems, recognizing that outcomes emerge from the interactions of interdependent components rather than from isolated, linear causes.

Trade-off
A competition between different objectives within a decision situation, where pursuing one objective will diminish achievement of other objectives (IPCC, 2022).

OVERVIEW

The key premise of this report is that a systems approach is essential for transforming agrifood systems. Business-as-usual is not solving interconnected problems like food insecurity, malnutrition and environmental harm. Working in a more connected way offers the pathway forward to achieving better production, better nutrition, a better environment and a better life, while leaving no one behind.

For decision-makers across sectors, a systems approach supports better decisions by showing how agrifood system parts are linked, from production to consumption. It helps to navigate complexity, to use resources wisely and spot key opportunities for change, leading to solutions that work across multiple goals.

Shifting to a systems approach involves six core elements: applying systems thinking, building systems knowledge, enabling systems governance, integrating actions through systems doing, securing systems investment and fostering systems learning. These elements form the concrete framework for joined-up action that is detailed in this report.

This approach is already being applied in practice. Countries around the world are applying elements of a systems approach at national, regional and local levels, showing that this more interconnected way of thinking, acting and working together is both possible and achievable. While there is not one blueprint for success, there are myriad pockets of progress that demonstrate the broader impact this approach can deliver.

By analysing these journeys of making and modifying relationships in agrifood systems, this report provides practical guidance for policymakers and practitioners to move beyond fragmentation. By using the six elements, they can tackle the underlying causes of complex problems and move toward shared goals for agrifood systems transformation.

The aim is to unlock the full potential of agrifood systems to drive lasting, large-scale change. This means creating systems that are socially, environmentally, and economically sustainable, while more resilient to future shocks. It requires rethinking how these systems work to deliver better outcomes for people and the planet.

PURPOSE

The purpose of *Transforming food and agriculture through a systems approach* is to clarify what a systems approach involves in practice across agrifood systems. It explains **what** a systems approach means in the context of agrifood systems, **why** it matters and **how** to adopt it. It advances the operationalization of a systems approach by outlining the key shifts needed to embed systems thinking into policies, programmes, projects, and interventions and illustrating how countries, regions and municipalities are putting these shifts into practice. The publication supports ongoing efforts being taken by policymakers and practitioners to advance progress towards multiple agrifood systems policy objectives, tackle complex challenges and address fragmentation and incoherence.

Drawing on evidence from systems science and insights from on-the-ground experience, this publication identifies key practices that distinguish a systems approach from a siloed approach, referred to as the "six core elements of a systems approach". The publication also illustrates how countries, regions and cities are making key shifts along this journey, demonstrating that a systems approach is both possible and achievable. While still emerging, these examples show that pathways are being forged to act more collectively, advancing from vision to implementation to results.

WHO IS THIS DOCUMENT FOR?

Transforming food and agriculture through a systems approach is intended for policymakers and practitioners committed to improving the diverse outcomes of agrifood systems that underpin food security for all, both now and in the future. The document is particularly relevant for those seeking effective ways to convert systems thinking into action, overcome fragmentation, and plan and work together across sectors and goals.

HOW CAN THE DOCUMENT BE USED?

The six core elements of a systems approach, along with the associated actions outlined in this publication, can be used to:

- Serve as a reference for policymakers and practitioners, providing a common framework, shared language, checklist and indicators for adopting a systems approach;
- Inspire the uptake of systems-based practices by showcasing real-world examples of countries, regions and cities working more systemically;
- Guide the integration of key systems elements into agrifood system policies;
- Inform the design of programmes, projects and funding proposals aimed at sustained systems change;
- Provide a structure to understand, analyse and share stories of change;
- Help policymakers and practitioners assess their current stage in the systems change journey and identify potential gaps or missing strategies;
- Offer insights into why current systems-based efforts may not be achieving expected results, and where to focus next to drive progress;
- Identify, in practical terms, where methods and tools are needed to support the transition from silos to systems; and
- Engage with youth about the systems approach to encourage adoption in current and future practice.

1. INTRODUCTION

Taking action in agrifood systems (BOX 1) holds immense potential to accelerate progress across a wide range of objectives: increasing agricultural productivity; improving nutrition and health; enhancing environmental sustainability; promoting inclusive economic growth and livelihoods; and reducing gender and other inequalities. Progress in all these areas is central to achieving food security. Recognizing this, the United Nations has identified food systems as one of six key transitions needed to accelerate progress towards the 2030 Agenda for Sustainable Development – the Sustainable Development Goals (SDGs) (United Nations Sustainable Development Group, 2023).

The terms "food systems transformation" and "agrifood systems transformation" are now widely used to express a vision of more efficient, inclusive, resilient and sustainable systems (FAO, 2021b). Transformation envisions agrifood systems that deliver better outcomes across the economy, environment, society and health – thereby contributing to the realization of the right to adequate food (BOX 2).

BOX 1. WHAT ARE AGRIFOOD SYSTEMS?

Agrifood systems are networks of interconnected components that interact dynamically to produce a range of outcomes. According to FAO, agrifood systems encompass all components involved in the journey of food from farm to table – from when it is grown, fished or harvested to when it is processed, packaged, transported, distributed, traded, bought, prepared, eaten, disposed of and reused. They also include non-food agricultural products that support livelihoods and all the people, activities, investments and choices that contribute to the production and delivery of these products (FAO, 2021a). Their many components include people, practices, products, policies, infrastructures and values.

Agrifood systems are broader than "food systems" in that they include other agricultural products like biofuels, fibres, wood and raw materials, which provide resources to access food, affect the environment that supports the food supply, and are a source of livelihoods and economic development in agriculture.

Agrifood systems are made up of subsystems. A subsystem is a coherent set of interconnected components that together deliver a specific function within the larger system – for example, seed, farming, school meal and waste management systems. Agrifood systems also interact with and depend on interrelated systems, including environmental (e.g. land, water), economic, health, social and political systems (von Braun *et al.*, 2023).

The way these components, subsystems and interrelated systems connect and function together determines the outcomes agrifood systems generate.

Agrifood systems exist at multiple scales: global, regional, national and local. There is no single agrifood system, but rather a diversity of interlinked and nested systems operating across these levels.

Note: In the FAO Constitution, the term "agriculture" and its derivatives include fisheries, marine products, forestry and primary forestry products.

Source: Authors' own elaboration.

BOX 2. WHAT DO TRANSFORMED AGRIFOOD SYSTEMS LOOK LIKE?

Transformed agrifood systems deliver interconnected benefits across the economy, environment, society and human health, including through enhancing agricultural productivity, nutrition and health, environmental sustainability, inclusive economic growth and livelihoods, and reducing inequalities. They balance these objectives, recognizing that progress in one area can create synergies or trade-offs with others. Advancing all dimensions is essential to achieving food security for all, and thus transformed agrifood systems play a central role in realizing the right to adequate food.

Transformed agrifood systems are efficient, inclusive, resilient and sustainable (FAO, 2021b). They ensure access to healthy diets made up of safe, nutritious foods, provide dignified livelihoods for millions working within them and remain resilient to future shocks. They produce food and agricultural products sustainably over the long term, without compromising the economic, social, and environmental foundations needed for food security and nutrition for future generations (HLPE, 2014). They contribute to achieving outcomes across the Sustainable Development Goals (Caron *et al.*, 2018).

Agrifood systems transformation is the process of achieving this vision. It is the deliberate and ongoing process of changing how agrifood systems function towards the sustained improvement of multiple interconnected outcomes at scale. While transformation can be catalysed by shocks, it often emerges from the cumulative effect of actions that build over time.

Source: Authors' own elaboration.

Against this backdrop, policymakers and practitioners at all levels – global, national and local – are turning increasing attention to agrifood systems. In 2025, the African Union adopted a ten-year strategy and action plan to transform agrifood systems across the continent. In 168 countries, nationally determined contributions (NDCs) are beginning to reflect the critical role of food and agriculture in reducing greenhouse gas (GHG) emissions (United Nations Framework Convention on Climate Change, 2024). More than 169 countries now implement school food programmes to support child nutrition (Global Child Nutrition Foundation, 2024). At the subnational level, many cities are leading the way in reducing food waste and strengthening local supply chains (MUFPP, 2025).

Change is clearly underway. Yet food insecurity, malnutrition and inequalities persist (FAO, IFAD, UNICEF, WFP and WHO, 2025). Threats such as unhealthy diets, antimicrobial resistance, the overuse and degradation of land, water and biodiversity loss continue to grow. Climate change, conflict, economic uncertainty and political volatility are pushing the right to adequate food and the 2030 Agenda further out of reach.

Policy choices made to deliver benefits today must also build sustainability and resilience for tomorrow.

Business as usual is no longer sufficient (FAO, 2022a). Policy measures to date have not proven adequate to place agrifood systems on a sustainable, resilient and healthy trajectory. Policy choices made to deliver benefits today must also build sustainability and resilience for tomorrow (FAO, 2023a). While there is significant heterogeneity between countries, new ways of thinking, acting and working together are urgently needed throughout to ensure that actions taken and investments made in agrifood systems deliver more meaningful and lasting returns.

In response to these challenges, policymakers and practitioners are beginning to adopt what is known as a systems approach. Recognizing the complex, interconnected nature of the issues at hand, they are increasingly aware that advancing progress on multiple fronts, addressing trade-offs, and anticipating future challenges and opportunities in agrifood systems requires moving from isolated actions to more coherent and integrated efforts.

The need to shift to a systems approach has been recognized for many years. The declaration on the Sustainable Development Goals called for an integrated policy approach, emphasizing that global challenges are "linked to each other and are interdependent," and that addressing them requires navigating synergies and trade-offs between different objectives, and balancing immediate needs with future risks and benefits (United Nations, 2015; United Nations Sustainable Development Group, 2023). The UN Food Systems Summit in 2021 further underscored the urgency of this shift, calling for interconnected actions to drive progress on multiple fronts.

Yet, many questions remain about how to apply a systems approach in practice. This document aims to support implementation by outlining key shifts and practical actions that can transform agrifood systems through policies, programmes, projects and interventions. It identifies six core elements where such shifts can unlock lasting impact. It shows that connecting silos and tackling fragmentation is both achievable and feasible, drawing on cases where countries, regions and cities are already taking practical steps. The goal is to help policymakers and practitioners make informed decisions that unleash the potential of agrifood systems for lasting benefits at scale. It explains **what** a systems approach means in the context of agrifood systems, **why** it matters and **how** to adopt it.

2. WHAT IS A SYSTEMS APPROACH?

A systems approach is a method of solving problems and advancing solutions that considers the interconnections within and between systems to achieve sustained, systemic change at scale (FAO, 2018a). It refers to *how* change is made based on the principle that understanding relationships and interactions is key to designing and implementing actions that change how systems work for lasting impact. It involves thinking systemically, acting coherently and working together collectively, shifting from fragmentation to connection and from isolated efforts to aligned action (Reynolds and Holwell, 2010).

In the context of *agrifood systems transformation*, **a systems approach is a way of thinking, acting, and working together that considers the interconnections among components and outcomes across agrifood systems and interrelated systems**. Its objective is to change how agrifood systems function to achieve and sustain multiple interconnected goals at scale. It involves recognizing, making and modifying relationships across agrifood systems and interrelated systems. This includes considering the interconnections along the entire journey from production to consumption, to change the way food and agricultural products are produced, distributed, processed, marketed and consumed. It involves enhancing synergies and managing trade-offs across economic, environmental, social and health goals, ensuring that the choices made today yield long-term benefits. It brings together existing but disconnected efforts designed to change agrifood systems. By taking a

joined-up, systems approach, decision-makers can guide agrifood systems along pathways from their current state toward a more desirable and sustainable future.

The benefits of considering interconnection can be illustrated through the design of school food programmes. A programme that delivers nutritious meals has the potential to contribute to health goals. However, if children's food preferences are ignored, food waste may increase. If food safety is not guaranteed, the programme cannot meet its core objective. And if the food is sourced from farms using unsustainable practices or exploitative labour, the programme may undermine environmental sustainability and equity goals.

In contrast, a school food programme that creates stable demand for local family farmers, supports investment in supply infrastructure, and incorporates considerations of cost, nutrition, environmental sustainability and gender, becomes a lever for broader, long-term change. It has the potential not only to improve children's diets but also to strengthen the agrifood systems on which future generations depend.

While working in isolation may deliver quicker results within a narrow scope, a systems approach creates more sustainable and far-reaching outcomes.

This example illustrates that a systems approach involves making decisions with an understanding of their ripple effects across an interconnected landscape. Starting with a strategic entry point at a feasible scale, it involves weighing both immediate objectives and long-term goals to generate broader system-wide benefits. It involves linking the present to the future, connecting food, health and the environment, bridging producers and consumers, aligning preferences with practices and connecting different subsystems. While working in isolation may deliver quicker results within a narrow scope, a systems approach creates more sustainable and far-reaching outcomes that strengthen agrifood systems as a whole.

3. WHY A SYSTEMS APPROACH?

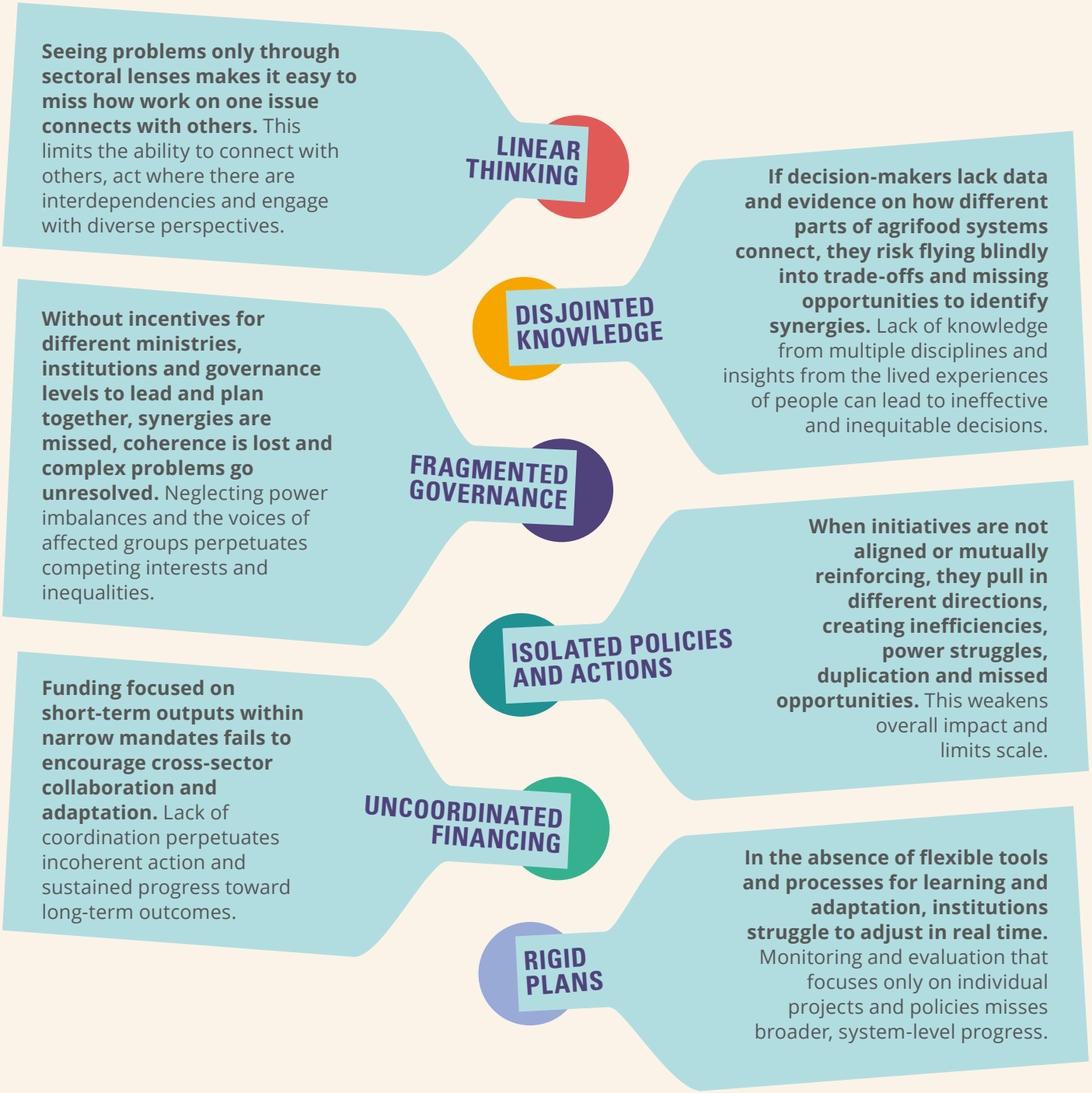
The rationale for shifting to a systems approach lies in its ability to address complex problems, unlock progress across multiple objectives for sustained results, and overcome the limits of siloed approaches to bring benefits for policymakers and practitioners (BOX 3 AND BOX 4). The core interrelated reasons for making the shift are as follows:

Siloed approaches create bottlenecks to change.

There are different ways to manage the inherent complexity of agrifood systems. One common way is to break them into parts and focus on achieving specific goals in isolation. There is a strong rationale for this approach since structures are needed to organize how work gets done in complex systems. But inadequately connecting the different parts limits the potential of policies and practices in agrifood systems to achieve multiple interconnected goals. Inherent interconnections in agrifood systems and with interrelated systems mean problems cannot be addressed in isolation. So-called "siloed approaches" thereby create bottlenecks to delivery through fragmented governance, incoherent policies and actions, uncoordinated financing and unmanaged competing priorities (BOX 3) (IPBES, 2024; FAO *et al.*, 2021).

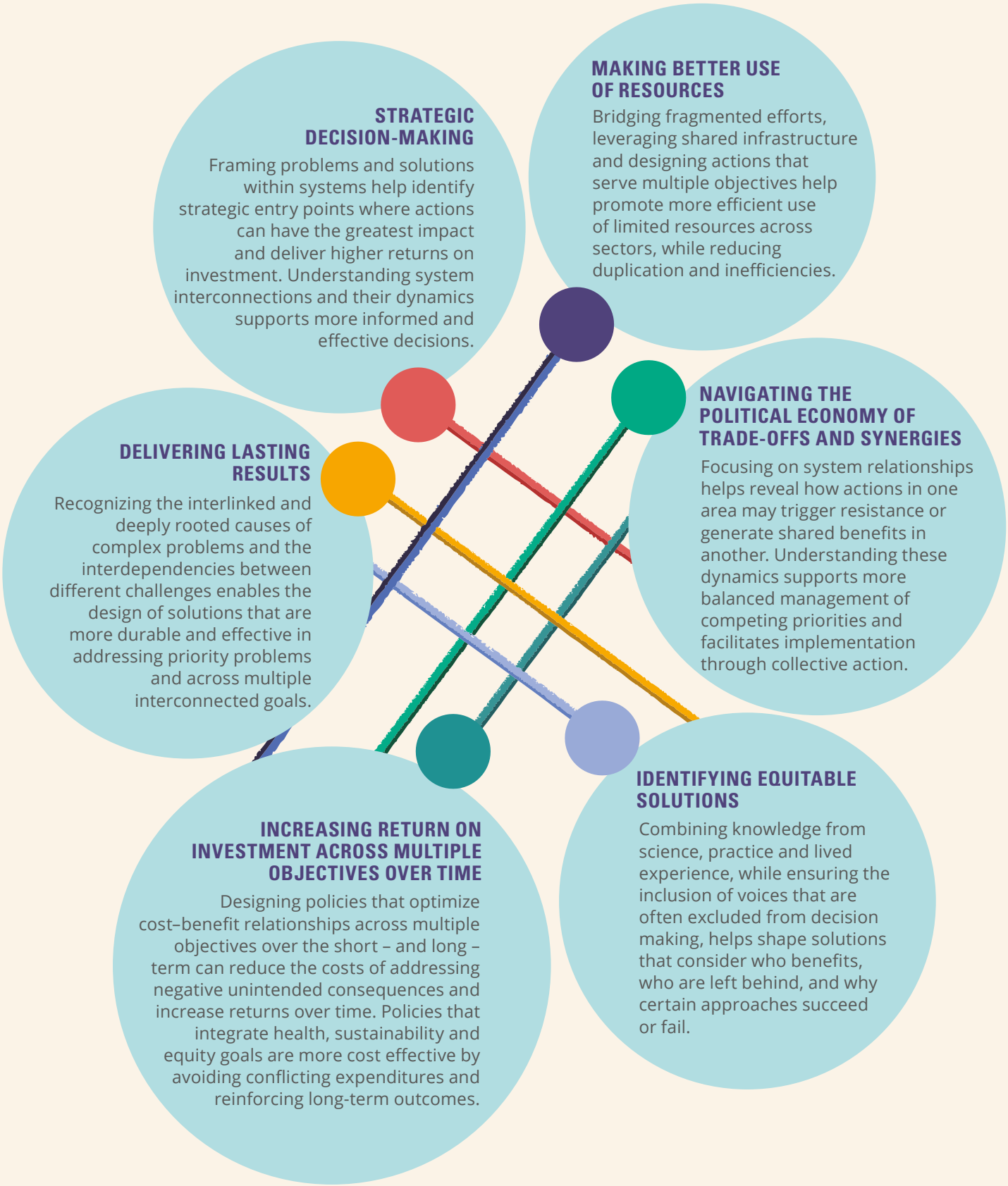
Lessons from history illustrate the risks of acting without adequately considering agrifood systems interconnections, including: **unintended negative consequences** over time, such

BOX 3. SILOED APPROACHES THAT CREATE BOTTLENECKS TO CHANGE



Source: Authors' own elaboration.

BOX 4. POTENTIAL BENEFITS OF A SYSTEMS APPROACH FOR POLICYMAKERS AND PRACTITIONERS IN AGRIFOOD SYSTEMS



Source: Authors' own elaboration.

as increasing agricultural productivity without accounting for environmental impacts; **limited effectiveness**, for example, targeting nutrition interventions to consumers without considering the role of food environments; **short-term gains that do not scale or last**, such as delivering external food assistance without considering local food systems; **inefficient use of resources**, for instance, investing in interventions to reduce the environmental impact of food production while neglecting food losses and waste; **resistance to implementation due to power struggles**, such as when livelihood concerns are overlooked by environmental measures; and **inequitable outcomes**, such as failing to make the connection between interventions and the role of women and youth as central system participants.

While interventions may appear costly upfront, they often generate net benefits over time by reducing the burden of environmental degradation, healthcare expenditures and social inequalities.

A systems approach holds potential for addressing the risks of fragmentation by embracing complexity, recognizing that separate sectors, expert disciplines and national priorities are all needed – but so are the connections between them. It is grounded in the understanding that systems function through interdependent components and relationships, and that multiple outcomes emerge from how these interactions unfold over time. A systems approach seeks to make those interlinkages visible and use them strategically.

Recognizing intertemporal relationships optimizes benefits across multiple policy objectives, turning short-term costs into long-term gains.

While interventions such as promoting sustainable agriculture, shifting towards healthier diets or improving food access may appear costly upfront, they often generate net benefits over time by reducing the burden of environmental degradation, healthcare expenditures and social inequalities (Global Panel on Agriculture and Food Systems for Nutrition, 2020). Considering the interconnections between these different agrifood system goals from short- to long-term enables policymakers and practitioners to see how the immediate investments required to integrate sustainability, health and equity into agrifood systems can lead to broader returns (Laborde and Torrero, 2023). For example, unhealthy dietary patterns are a major contributor to noncommunicable diseases and account for 70 percent of all quantified hidden costs of agrifood systems (FAO, 2024a). Reducing consumption of ultraprocessed foods and supporting diverse, nutritious diets will require significant changes in food production, distribution and consumption,

but can lead to substantial health and economic savings over time. By adopting a systems approach that accounts for these externalities, governments and institutions can better prioritize investments and policies that reduce cumulative harm, improve efficiency across objectives, and deliver more equitable and resilient outcomes.

Harnessing interconnections can deliver better results, efficiency, sustainability and resilience.

Harnessing key relationships in agrifood systems brings many potential benefits for policymakers and practitioners (BOX 4). Identifying deeply rooted, systemic causes enables problems to be addressed long-term, reducing the need for continued external support. Bringing together and bundling ongoing interventions across agrifood and interrelated systems is a means of achieving greater **impact** more efficiently. Acknowledging the interlinkages among multiple policy objectives can likewise enhance **efficiency** when actions targeting one goal inadvertently raise the costs of achieving another. Considering connections with interrelated environmental, economic and social systems strengthens **sustainability** across dimensions. Reinforcing positive feedback loops and strengthening weak relationships enhances **resilience** to shocks and stresses. Creating space for people with lived experience to contribute meaningfully promotes **inclusiveness** and reduces inequalities (FAO, 2025a). By harnessing these key relationships, agrifood systems can become more efficient, inclusive, resilient and sustainable (FAO, 2021c).

A systems approach is the engine of transformation of food and agriculture.

Agrifood systems transformation refers to the deliberate and ongoing process of changing how agrifood systems function towards the sustained improvement of multiple interconnected outcomes at scale (BOX 2). A systems approach is the process that enables this transformation. Most existing agrifood systems were not designed to achieve the multiple goals required for lasting food security. By tackling systemic challenges and deliberately reconfiguring relationships, a systems approach alters how agrifood systems function to deliver a different set of outcomes. Through actions that consider and reshape key relationships with a clear sense of direction, systems transform to function in a way that can achieve multiple interconnected goals.

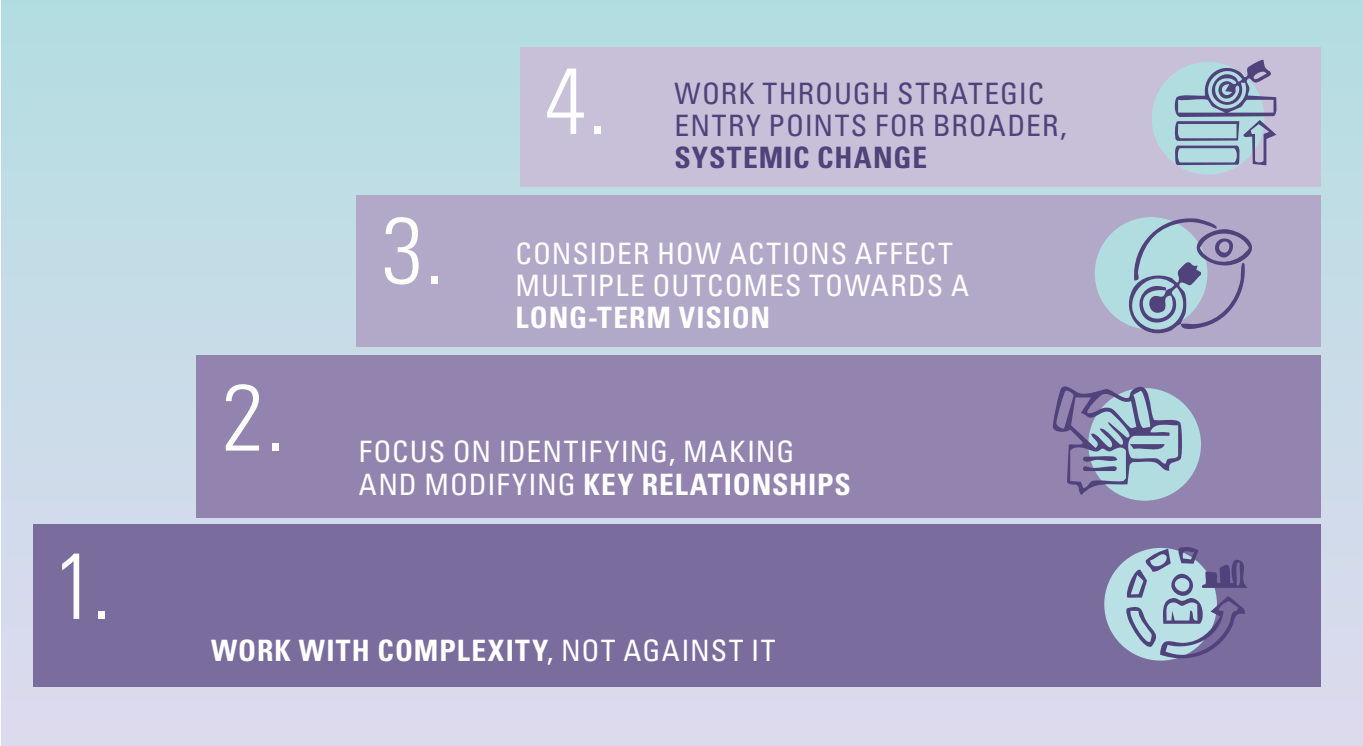
4. HOW TO IMPLEMENT A SYSTEMS APPROACH

4.1. PRINCIPLES TO GUIDE DECISION-MAKING

A systems approach embraces the complexity of agrifood systems by **working with, rather than against, the inherent characteristics of systems**. This is the foundational principle guiding the application of a systems approach in practice.

Three further imperatives emerge from this foundation. First, when making decisions about policy and practice, **focus on identifying, making and modifying key relationships**. Second, decisions taken towards any objective should **consider how actions affect multiple outcomes towards a long-term vision**. Third, keeping it practical involves **working through strategic entry points for broader, systemic change** (FIGURE 1).

FIGURE 1. PRINCIPLES TO GUIDE DECISION MAKING WITH A SYSTEMS APPROACH



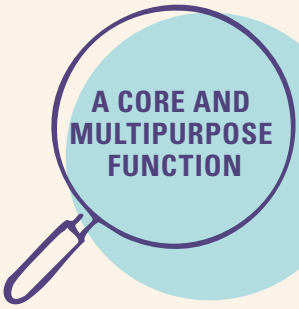
Source: Authors' own elaboration.

WORK WITH COMPLEXITY, NOT AGAINST IT

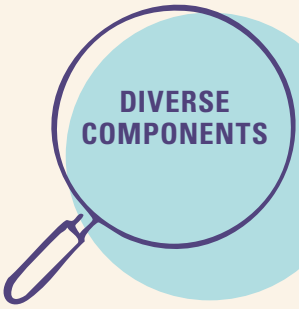
A systems approach embraces the real-world reality that systems are complex. It fosters change by engaging with the intrinsic characteristics of systems. These characteristics have been well documented through decades of research in systems science (BOX 5). Working with them requires concrete differences in ways of thinking, acting and working together, as elaborated in Section 4.3.

A systems approach embraces the real-world reality that systems are complex.

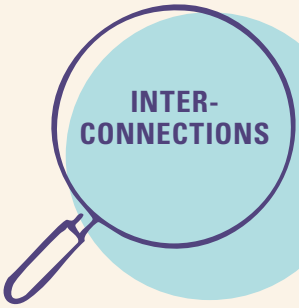
BOX 5. INHERENT CHARACTERISTICS OF AGRIFOOD SYSTEMS



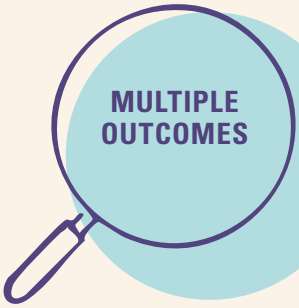
Agrifood systems exist to produce and deliver food and agricultural products from production to consumption. They also support livelihoods, drive economic activity, protect ecosystems, meet nutritional needs and uphold cultural identities.



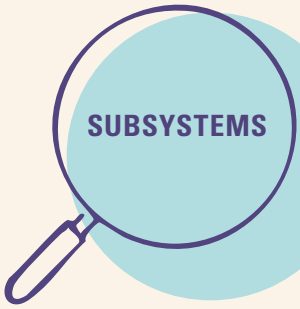
Components that bring food and agricultural products from production to consumption are both "hard" and "soft", such as people, processes, products, institutions, policies, infrastructures, natural resources, technologies, knowledge, preferences, norms and values.



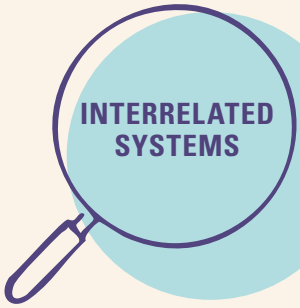
Numerous relationships link system components and shape outcomes. These connections create ripple effects, trade-offs and synergies when change is introduced.



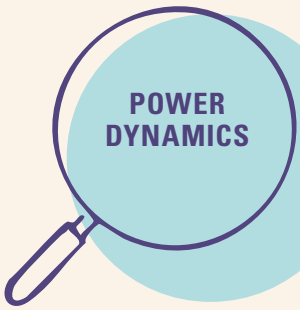
Whether intended or unintended – across economic, environmental, health and equity dimensions. Some outcomes may benefit certain groups while disadvantaging others.



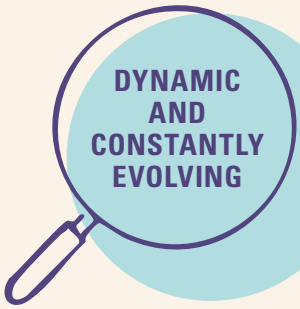
Agrifood systems comprise interlinked subsystems with specific purposes – for example, seed systems, specific value chains, school food programmes, and waste management and marketing – that collectively add up to the whole system. The whole system cannot function well to deliver its purposes if one or more subsystems do not function effectively.



Agrifood systems depend on and influence other systems such as land, water, energy, health, transport, and broader environmental, political, economic and social systems.



Different people and institutions have differing levels of power to advance their priorities and interests in agrifood systems. These power dynamics shape interconnections and therefore how agrifood systems function and what outcomes they produce.



Their many interconnections, feedback loops, nonlinear behaviours and uncertainties make it difficult to predict the impact of any single action. These traits also make systems hard to steer and slow to shift without deliberate, sustained effort.

Source: Authors' own elaboration.

FOCUS ON IDENTIFYING, MAKING AND MODIFYING **KEY RELATIONSHIPS**

One of the most defining characteristics of agrifood systems is the presence of multiple, interacting relationships among practices, outcomes, institutions and people. These interlinkages create both opportunities and risks. Understanding **what** is connected and **how** those components are connected provides critical insights for effective decision-making.

- **What is being connected:** TABLE 1 outlines ten key relationships to consider in agrifood systems decision-making. Their role and significance vary significantly between populations and places, but each has the potential to influence outcomes. For instance, the interconnection between production and consumption along supply chains affects prices for both producers and consumers. Understanding the relationship between agricultural practices and environmental sustainability can help guide the adoption of practices that maintain healthy soils.
- **How the connections work:** Relationships in agrifood systems take different forms. Some involve trade-offs, others generate synergies, and some do both. Certain links are straightforward, while others develop into deeper interdependencies, such as those between agricultural production and land and water systems. Feedback loops are especially important. These are connections through which change is either amplified (reinforcing feedback) or counteracted (balancing feedback). A typical balancing loop is the response of food prices to changes in demand. Reinforcing loops can be both positive and negative and are particularly relevant for resilience. For instance, excessive fertilizer use can create a slow reinforcing loop of soil degradation, where more fertilizer leads to further degradation, undermining long-term resilience (IPCC, 2019). Conversely, appropriate pesticide use may support natural predators and reduce pest pressure, creating a reinforcing loop that strengthens system resilience (Elmqvist *et al.*, 2003). Without such reinforcing loops, systems may show short-term improvement, only for progress to fade over time.

Understanding what is connected and how those components are connected provides critical insights for effective decision-making.

TABLE 1. TEN KEY RELATIONSHIPS TO CONSIDER WHEN MAKING DECISIONS IN AGRIFOOD SYSTEMS

	DESCRIPTION OF RELATIONSHIP	EXAMPLES
1 PRODUCTION AND CONSUMPTION	The links between input supply, production, processing, distribution, retail, marketing, and consumption, disposal and reuse.	• Producers and retailers • Between activities that transform raw materials into finished products ("value chain")
2 AGRIFOOD SYSTEM PRACTICES AND OUTCOMES	The relationship between practices across agrifood systems and outcomes related to nutrition, environment, economy and health.	• Interaction between agronomic practices and climate outcomes • Commercial marketing practices and children's food preferences
3 PEOPLE AND INSTITUTIONS	The ways people and organizations interact across agrifood systems.	• Between health, environment and agricultural ministries • Inclusion of people with lived experience in decision-making
4 POWER RELATIONS	How individuals and institutions relate based on access to resources, decision-making power and agency.	• Concentration of market power among transnational agribusinesses, production, exports and food manufacturers • Limited access to resources among smallholders and women
5 AGRIFOOD SYSTEM OUTCOMES	The interlinkages among outcomes such as food production, nutrition, environmental sustainability and livelihoods.	• Trade-offs between climate change and agrifood systems livelihoods • Trade-offs between unhealthy diets and economic outcomes for the public and private sector
6 NORMS, VALUES AND BEHAVIOURS	The connection between norms, values and behaviours that influence the adoption of agrifood system practices.	• Gender norms and technology adoption • Consumer trust in food retailers and shopping practices
7 AGRIFOOD SYSTEMS AND INTERRELATED SYSTEMS	Interdependencies between agrifood systems and systems such as environment, health, transport, energy and housing.	• Food production (agrifood system) and soil health (environmental system) • Food availability (agrifood systems) and people's ability to afford food (socioeconomic systems)
8 SUBSYSTEMS	Links between different subsystems within agrifood systems.	• Production subsystem (growing crops) and distribution subsystem (transporting food to markets) • Interactions between family systems and food retailing systems
9 ACROSS SPACE, PLACE AND JURISDICTIONAL LEVELS	Interconnections between different geographic areas within and across countries and regions and between global, national and local levels.	• Food trade between different countries • Urban areas and their rural territories • Decisions made by city authorities about agrifood systems and national decisions
10 SHORT-, MEDIUM- AND LONG-TERM	How the impact of taking actions to achieve immediate priorities affects long-term outcomes.	• Impact of increasing agricultural production today on longer-term productivity • Long-term impacts of lack of access to healthy diets and exposure to unhealthy food environments on noncommunicable diseases

FIGURE 2. TEN KEY RELATIONSHIPS IN AGRIFOOD SYSTEMS

Source: Authors' own elaboration.

CONSIDER HOW ACTIONS AFFECT MULTIPLE OUTCOMES TOWARDS A **LONG-TERM VISION**

Agrifood systems are dynamic and continuously evolving. Without a clear vision for the desired future, the many people and institutions involved risk working at cross purposes, resulting in fragmented change. With this vision in mind, people and institutions with different mandates and goals need to consider how their actions contribute to and affect different outcomes. If the primary goal is nutrition, for example, being mindful of how proposed interventions affect agricultural productivity, economic growth, livelihoods, environmental sustainability and inequalities. Likewise, those delivering agricultural interventions should consider nutrition, environmental sustainability and gender equality. The intertemporal dimension is key. Short-term economic goals may have implications for health and environment. Because benefits often accrue over time, assessing short-term costs against long-term system gains is crucial. This means looking beyond immediate costs to understand how investments could strengthen agrifood systems resilience and sustainability.

A broader, systems-level view enables decision-makers to prioritize interventions that generate value across multiple, interconnected functions, rather than opting for narrow measures with limited or short-lived results. Considering the full range of outcomes across time is therefore essential to driving meaningful agrifood systems transformation.

A broader, systems-level view enables decision-makers to prioritize interventions that generate value across multiple, interconnected functions, rather than opting for narrow measures with limited or short-lived results.

WORK THROUGH STRATEGIC ENTRY POINTS FOR BROADER, **SYSTEMIC CHANGE**

Agrifood systems' broad scope means wide-ranging actions are taken across subsystems to address various priorities, such as water shortages, unsafe food or poor child health. While making changes through specific entry points to address priority problems is necessary, being strategic in assessing how they can have most impact across agrifood systems is crucial. This involves deliberately choosing where action can deliver greater impact and larger returns across the system. "Strategic entry points" are system elements, relationships, or subsystems where targeted action triggers positive changes across the system, unlocking broader transformation with lasting impacts at scale.

Understanding key relationships is essential to identifying these strategic entry points for intervention.

One key type is a "leverage point" where small shifts produce disproportionately large, lasting changes (Meadows *et al.*, 2008).

Understanding key relationships is essential to identifying these strategic entry points for intervention. When well chosen, strategic entry points help to unblock constraints, address structural weaknesses and build connections across components and subsystems, generating broader and more lasting benefits. When actions are implemented through strategic entry points in multiple subsystems, change can begin to coalesce into whole-system transformation. Strategic entry points exist at different scales and identifying them is an ongoing process. They can include areas within agrifood systems that:

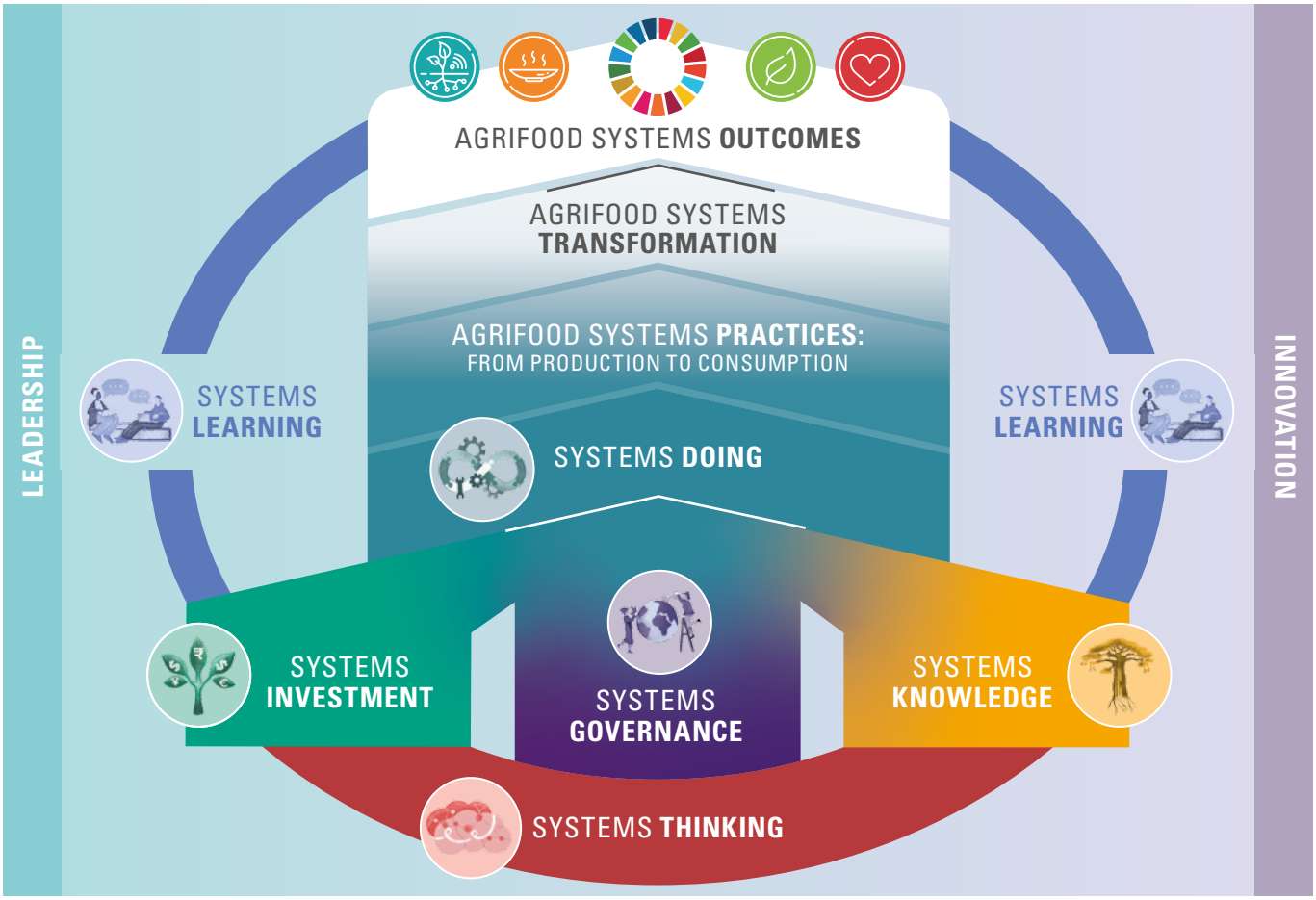
- **Activate feedback loops that spread change:** Feedback loops play a key role in how change unfolds over time. For example, addressing the link between fertilizer use and soil health can interrupt a harmful slow feedback loop, with benefits for productivity, the environment and rural livelihoods.
- **Produce co-benefits for multiple outcomes**: Policies or actions targeting one goal can often advance others. Identifying interventions that deliver co-benefits increases efficiency and broadens political support across sectors.
- **Act as systemic enablers:** These are foundational actions that create the conditions for other reforms to succeed by addressing systemic challenges such as, depending on context, land reform, financing, institutional innovations and unhealthy diets. They also involve tackling entrenched behaviours and norms that block change, especially where incentives for individuals or institutions to act differently are weak. For example, addressing inequitable gender relations and social norms.
- **Convert a dysfunctional subsystem into a functional one:** When a subsystem is not delivering towards the multipurpose vision of agrifood systems, it undermines the whole. For example, if commercial food promotion systems encourage unhealthy eating, this disconnects efforts to produce more nutritious foods in production systems from nutrition outcomes. Fixing the subsystem is essential for the wider system to deliver better results.
- **Strengthen interdependencies with interrelated systems:** Agrifood systems depend on connections with others, such as soil, housing and energy. For instance, degraded soils caused by deforestation reduce tree regrowth, or a lack of clean energy and water makes household food preparation difficult, weakening nutritional outcomes.
- **Address blockages emerging from power relations:** Power dynamics often create obstacles to change. Entry points like tackling anti-competitive policies, ensuring market access for smallholder farmers and small- and medium-sized enterprises can help address such barriers.
- **Strengthen weak connections:** Some parts of the system are poorly linked – for example, farmers without access to markets. Strengthening these links can boost performance and inclusion.
- **Fix broken connections:** Sometimes key elements are missing. For example, food safety regulations without adequate testing facilities leave consumers unprotected. Identifying and fixing these gaps is essential to ensure systems work as intended.

4.2. SIX CORE ELEMENTS OF A SYSTEMS APPROACH

Implementing a systems approach requires making intentional choices about what to do and how in the daily practice of decision-making about policies, programmes, projects and interventions.

Insights from both policy and practice, as well as systems science (BOX 5), show that a systems approach involves six core, interrelated practices (FIGURE 3). These form the six elements of a systems approach, which are distinct from practices that overlook interconnections (TABLE 2).

FIGURE 3. THE SIX ELEMENTS OF A SYSTEMS APPROACH TO AGRIFOOD SYSTEMS TRANSFORMATION



Source: Authors' own elaboration.

TABLE 2. THE SIX CORE ELEMENTS OF A SYSTEMS APPROACH

	SYSTEMS **THINKING**	MINDSETS THAT SEE SYSTEMS
	SYSTEMS **KNOWLEDGE**	DATA AND EVIDENCE FOR SYSTEM-CHANGE
	SYSTEMS **GOVERNANCE**	JOINED-UP EFFORTS ACROSS SECTORS
	SYSTEMS **DOING**	IMPLEMENTING ACTIONS THAT HARNESS INTERCONNECTIONS
	SYSTEMS **INVESTMENT**	RESOURCES DIRECTED TO LONG-TERM TRANSFORMATION
	SYSTEMS **LEARNING**	CONTINUOUS LEARNING AND ADAPTATION

Source: Authors' own elaboration.

1. **Systems thinking – Understand how things are connected and who needs to be involved.** Establishing shared visions for agrifood systems and identifying strategic entry points are essential practices in agrifood systems transformation. Both practices require systems thinking, or "mindsets that see systems", which enables people to visualize and identify key interconnections (Meadows, 2008; Woodhill and Millican, 2023). This creates the foundation for understanding how different parts of agrifood systems interact to produce intended and unintended outcomes, why different people and institutions hold their perspectives, and recognizing who needs to be involved in making change (IPBES, 2024). Systems thinking is foundational to all elements of a systems approach (FIGURE 3). Without recognizing that problems are interconnected and have multiple, interlinked causes, institutions are unlikely to look beyond sectoral mandates to pursue joined-up solutions and systemic change.

2. **Systems knowledge – Work together to understand causes, effects and what gets in the way.** This practice focuses on generating and using evidence to inform systems change. Given the complex and dynamic nature of agrifood systems, systems knowledge seeks to identify systemic causes and understand how different policies and practices interact to produce multiple, interconnected outcomes (TABLE 1) (Schneider *et al.*, 2025). It includes insights into power dynamics – understanding what blocks change, and who benefits or loses (Resnick and Swinnen, 2023). Systems knowledge is essential both for identifying where interventions are needed – such as bottlenecks caused by disconnections, and for anticipating how today's actions may shape agrifood systems in an uncertain future (FAO, 2022a). Unlike conventional single-discipline approaches, it draws on diverse sources and integrates perspectives across fields, such as lived experience from women, children and Indigenous Peoples (Global-Hub on Indigenous Peoples' Food Systems, 2021; FAO, 2025a; UNICEF, 2022). It supports the evaluation of potential costs and benefits of interventions, helping avoid unintended consequences while identifying those with the highest systemic return. By informing dialogue at the science–policy interface (FAO, 2024b), systems knowledge enables institutions to identify strategic entry points for action with the greatest impact across interconnected goals (see Section 4.1.4).

3. **Systems governance – Share decisions, work across sectors, and deal with power imbalances.** This practice involves connecting efforts across the many sectors and people involved in changing agrifood systems. It is essential given the diversity of people and institutions involved, each with differing perspectives, levels of power, and responsibilities (UNEP, FAO and UNDP, 2023). Systems governance entails a distributed approach to leadership, in which the broad range of people involved take action in a decentralized manner in pursuit of a shared vision, while recognizing competing priorities, addressing conflicts and confronting power dynamics that hinder transformation (Bojić *et al.*, 2022; Dreier *et al.*, 2019). Without effective systems governance, isolated actions work at cross purposes, systemic change is obstructed, and outcomes are inequitable.

4. **Systems doing – Implement actions that support each other and deliver bigger results.** This practice focuses on translating a shared vision into coherent, joined-up action. Systems doing is essential because agrifood systems are shaped by interacting components that collectively influence outcomes and create ripple effects. It involves aligning diverse actions towards a goal, increasing policy coherence, bringing together "portfolios" and "bundles" of actions across different parts of agrifood systems, connecting existing initiatives, crafting co-benefits and managing trade-offs. It includes laws, regulations, policies, programmes, projects and interventions from local to global levels. Systems doing is critical to avoiding siloed implementation, which can create new problems, result in persistent bottlenecks and miss opportunities to enhance system-wide efficiency.

5. **Systems investment – Fund the big picture, not just short-term projects.** This practice is about mobilizing and directing resources to support sustained, system-wide change for long-term transformation. It requires long-term, coordinated, flexible funding that can adapt to evolving circumstances and draws on a mix of public, private and blended finance. Systems investment moves beyond siloed funding approaches through intentional focus on matching resources to the complexity and duration of systems change. This type of investment ensures that financing is embedded as part of how agrifood systems function.

6. **Systems learning – Keep learning, adjusting and sharing what works.** Systems learning is the practice of integrating continuous learning and adaptation through monitoring and evaluation (M&E), piloting new approaches and sharing experiences. Systems learning is essential because agrifood systems are inherently dynamic and constantly evolving, and responses to interventions can be unpredictable. It involves embedding learning into decision-making, planning and implementation. It is also about recognizing change at the level of systems, not just outcomes, adapting based on lessons learned, experience and engaging in peer-to-peer learning to avoid the inefficiencies of learning alone in a complex system. Collective learning processes can expand mindsets, build adaptive capacity and trust, and strengthen agency to engage with complexity and act.

Systems doing is critical to avoiding siloed implementation, which can create new problems, result in persistent bottlenecks and miss opportunities to enhance system-wide efficiency.

The transformative power of the six elements lies in how they interact (FIGURE 3). They are interdependent and mutually reinforcing. Systems thinking provides the essential mindset shift – the foundation for seeing connections and complexity – while systems doing, at the centre, translates that thinking into effective, integrated action. It is through systems doing that real shifts in agrifood practices, from production to consumption, take place. Supporting this core are three critical enablers: systems knowledge, to understand causes and effects across the system; systems governance, to connect actors and align decision-making; and systems investment, to provide the sustained, flexible resources needed for long-term change. All of this is underpinned by systems learning, which allows for adaptation and continuous improvement as agrifood systems evolve. Cutting across every element are two powerful accelerators: systems leadership, which equips policymakers and practitioners to catalyse, enable and sustain transformation; and systems innovation, where social, policy, institutional, financial and technological breakthroughs shift how agrifood systems function.

BOX 6. THE PROCESS USED TO IDENTIFY THE SIX ELEMENTS OF A SYSTEMS APPROACH

Several sources informed the identification of the six elements of a systems approach and their associated key shifts.

- **First,** Food and Agriculture Organization of the United Nations (FAO) colleagues shared their experiences of applying a systems approach, which helped establish a common understanding of the core practices involved.
- **Second,** a comprehensive review of both peer-reviewed and grey literature identified key characteristics of agrifood systems drawing from general systems theory, research on sociotechnical systems, and agrifood system applications. The review also examined barriers to systems change and existing systems-based frameworks already established in agrifood systems.
- **Third,** practical examples from FAO's ongoing work and partner initiatives were compiled through interviews, discussions and document review. The writing team, supported by internal reviewers, analysed this extensive body of information to identify the most relevant and applicable elements.

The process was guided by several key considerations, including making the framework practical for both operational work and policy guidance, and grounding it in country experiences. Feedback from FAO personnel, reviewers and partners further refined the content.

Source: Authors' own elaboration.

TABLE 3. THE SIX CORE ELEMENTS OF A SYSTEMS APPROACH: THE CONCRETE DIFFERENCES IN THE WAY WE THINK, ACT AND WORK TOGETHER

ELEMENT	SILOED APPROACH	SYSTEMS APPROACH
 **SYSTEMS THINKING:** MINDSETS THAT SEE SYSTEMS	Seeing purpose, priorities, problems and solutions in isolation	Looking beyond mandates and identifying interconnections
 **SYSTEMS KNOWLEDGE:** DATA AND EVIDENCE FOR SYSTEM-CHANGE	Assessing problems, causes and outcomes separately	Co-creating knowledge on system interlinkages and multiple outcomes
 **SYSTEMS GOVERNANCE:** JOINED-UP EFFORTS ACROSS SECTORS	Fragmented institutions and decision-making	Distributing leadership, jointly planning and dealing with power dynamics
 **SYSTEMS DOING:** IMPLEMENTING ACTIONS THAT HARNESS INTERCONNECTIONS	Isolated interventions	Implementing mutually reinforcing, multi-purpose actions
 **SYSTEMS INVESTMENT:** RESOURCES DIRECTED TO LONG-TERM TRANSFORMATION	Short-term, uncoordinated, inflexible funding	Deploying longer-term, coordinated, flexible resources
 **SYSTEMS LEARNING:** CONTINUOUS LEARNING AND ADAPTATION	Prescriptive action, rigid procedures and isolated learning	Embedding ongoing collective learning and adaptation in real-time

Source: Authors' own elaboration.

The six elements of a systems approach reflect both established and emerging frameworks for systems change (Kim and Anderson, 1998; Meadows, 2008; Kania *et al.*, 2018; Banerjee, 2021). They also reflect systems-based approaches already taken in agrifood systems. For example, One Health links human, animal and environmental health through joined-up efforts and shared data to prevent and manage risks (FAO, 2025b). Agroecology principles include creating synergies and co-creation (FAO, 2018b; FAO, 2023b). Nexus approaches aim to manage interlinkages between interrelated systems and outcomes, such as food, water, energy, biodiversity and health, and between humanitarian and development approaches

(Zhang *et al.*, 2024; IPBES, 2025; FAO, 2021d; Estoque, 2023; FAO, CGIAR and CARE, 2021). Others include circular economy, bioeconomy, sustainable public procurement, agricultural innovation systems, territorial approaches, integrated land management, market systems development and biocentric approaches based on knowledge systems of Indigenous Peoples, which views ecosystems and their human and non-human co-inhabitants as intrinsically connected (FAO, Alliance of Bioversity International and CIAT, 2021; FAO, 2021e).

Indigenous Peoples' food systems are a unique and time-tested systems approach. Shaped by a holistic and spiritual connection with nature and Indigenous territories, they demonstrate balance between food generation and the sustainable management of natural resources. These systems exemplify collective governance, shared knowledge, sustainability and resilient practices adapted to diverse ecosystems (FAO, 2021e). Highlighting the importance of systems learning as a core element of a systems approach, they are the result of centuries of trial and error, adaptation, experimentation and refinement in various ecosystems and landscapes. Indigenous Peoples have long practiced systems learning through oral traditions, intergenerational mentorship and place-based experimentation.

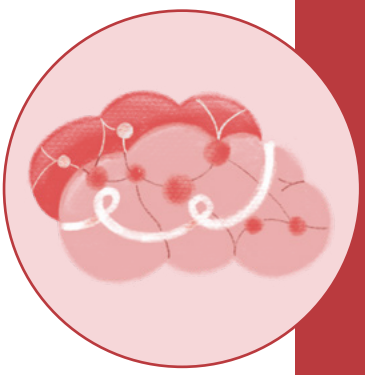
The six elements are also consistent with the principles underlying the Right to Adequate Food. The Panther Principles of participation, accountability, non-discrimination, transparency, human dignity, empowerment and rule of law are the core human rights standards guiding its fulfilment (FAO, 2024c). A systems approach to agrifood aligns with these principles in particular by embedding inclusive participation in decision-making, promoting transparency through shared knowledge, and enabling accountability through joint learning and adaptation. It also helps identify and address exclusion, ensuring that policies are fair, responsive and uphold the dignity and rights of all people.

4.3. PRACTICAL ACTIONS TO IMPLEMENT A SYSTEMS APPROACH

A systems approach is widely recognized as essential for transforming agrifood systems, but the real challenge lies in *how* to put it into practice. The clearest answers come from change already happening on the ground at national and subnational levels. Across a wide range of contexts – from fragile and conflict-affected areas to major urban centres – people and institutions are taking steps that align with the six elements of a systems approach. The examples shared here illustrate how transformation unfolds in real life: often gradually, sometimes partially, but cumulatively building strengths as new connections are made and harnessed. Each case shows how progress in one area often draws support from other elements and in turn reinforces them. These shifts build momentum, deepen linkages across the system and show how a systems approach becomes self-sustaining along the way. These country experiences also indicate practical ways to track progress using clear markers that assess whether a systems approach is taking hold and how strategies can be refined along the transformation journey.

A systems approach is widely recognized as essential for transforming agrifood systems, but the real challenge lies in how to put it into practice.

SYSTEMS **THINKING**: MINDSETS THAT SEE SYSTEMS



Country experiences indicate that the practice of shifting to systems thinking involves:

- **Co-creating shared visions** by bringing together different perspectives to uncover interconnections and reframe problems and solutions.
- **Identifying strategic entry points** to deliver the greatest benefit for the resources used in driving change across interconnected areas of agrifood systems.
- **Building capacities for systems thinking, leadership and innovation** to strengthen the ability of institutions and individuals to understand complexity, collaborate effectively and navigate change.

Understanding the inherent characteristics of systems (BOX 5) indicates these three shifts are priorities because:

- **The multipurpose nature of agrifood systems creates the imperative for shared visions.** Differing perspectives are to be expected in multipurpose agrifood systems. The process of building shared visions exposes participants to different views, facilitating the ability to see interconnections and look beyond individual mandates. The process creates space to

FIGURE 4. THREE KEY SHIFTS TO SYSTEMS **THINKING**

	SILOED APPROACH	SYSTEMS APPROACH	HOW TO IMPLEMENT*
KEY SHIFT	Seeing only one's own, purpose perspective, mandate, objectives, solutions and priorities	Bring together different views to co-create shared visions and identify common solutions	• Conduct cross-agrifood system dialogues • Facilitate visioning workshops • Carry out inclusive agrifood system policy planning processes
KEY SHIFT	Characterizing entry points only as priority problems and solutions	Identifying strategic entry points that can trigger positive changes across the system	• Conduct systems-based assessments, such as systems-based value chain analysis and urban food assessments
KEY SHIFT	Only building sector-specific technical expertise	Building capacities for systems thinking, innovation and leadership	• Offer learning programmes with systems-based tools and approaches

* Illustrative examples from countries, not an exhaustive list of actions.
Source: Authors' own elaboration.

reflect on competing priorities, find alignment and chart a common course toward long-term, system-wide goals.

- **Targeted action focused on key subsystems and interlinkages can trigger positive ripple effects across the system.** This calls for a mindset shift, from viewing entry points as isolated priority problems to recognizing strategic entry points in subsystems where action can unlock wider, lasting change.
- **Technical knowledge alone is not enough.** Effective action depends on capacities for systems thinking and systems leadership – the ability to convene diverse people and groups, facilitate dialogue, build trust and guide adaptive action – as well as systems innovation. These competencies are vital for crafting and implementing integrated responses that reflect the complexity of how agrifood systems truly function.

Across countries, regions and cities, people and institutions are taking practical action to implement these shifts in various ways. These include **cross–agrifood system facilitated dialogues** (e.g. Ethiopia, Albania); multisector, inclusive **policy planning processes** to develop **agrifood system strategies, laws** and **action plans** (e.g. Mexico, Rwanda); **conducting system-based assessments** (e.g. Colombo, Sri Lanka; Pakistan); hosting local **visioning workshops** (e.g. Central Highlands, Kenya); and **learning programmes with systems-based tools and approaches** (e.g. Rwanda, Brazil). The process of **developing national dietary guidelines** is another means of developing a vision that supports the identification of common solutions and strategic entry points (e.g. Ministry of Food, Agriculture and Fisheries of Denmark, 2021).

Drawing on these examples, the indicators below are initial suggestions for how to assess if systems thinking is being embedded in how people and institutions understand and respond to agrifood challenges.

POTENTIAL INDICATORS OF PROGRESS: SYSTEMS **THINKING**

- Cross-sector agrifood system dialogues have taken place to define a common vision and direction.
- A shared vision or agrifood system strategy has been co-created, is referenced across institutions, and regularly used to guide the direction of policies and actions.
- Core policies and programmes are built around strategic entry points with transformative intent and co-developed by multiple ministries and partners.
- Policies, programmes, and projects reflect an understanding of interconnections through cross-sector objectives, joint planning or intentional engagement with trade-offs and co-benefits.
- Systems-thinking training and tools are being implemented and scaled, with evidence of uptake and application.
- Systems leadership capacities and innovation competencies are being built among youth and key leaders.

ETHIOPIA

CO-CREATING A NATIONAL VISION GUIDES NEW POLICY THINKING

KEY SHIFT

In 2021, the Government of Ethiopia shifted to a common vision to guide agrifood systems transformation, building on existing strategies such as the Seqota Declaration to end childhood stunting (2015), the National Nutrition Sensitive Agriculture Strategy (2017), the Green Legacy Initiative (2019) and the Homegrown Economic Reform Agenda (2020). The vision integrated these different aspects of agrifood systems managed by different ministries, encouraging institutions to identify their unique entry points to contribute coherently towards the vision (DPG Ethiopia, 2024).

PRACTICAL ACTION

The process began with a joint background paper outlining agrifood systems challenges and opportunities. This informed three national Food Systems Dialogues, engaging over 120 diverse participants. Similar dialogues were conducted in 148 countries ahead of the 2021 UN Food Systems Summit. The method encouraged mutual understanding across sectors and helped identify points of alignment (FSD, 2025).

ENABLERS

Strong government commitment to a cross-sectoral approach was key. National convenors were selected from two ministries – the Minister of Agriculture (convenor) and the Minister of Health co-convenor) – to lead the process. The Agricultural Transformation Institute provided secretarial support, with active engagement from other sectors and ministries throughout.

OUTCOMES

The resulting Ethiopia Food Systems vision calls for "a holistic transformation... from production to consumption that promotes food safety, improved diets, livelihoods, land restoration and resilience" (UNFSS, 2021). The process led to the identification of systemic enabler clusters, such as food safety; healthy siet; disaster risk management and social protection; and sustainable urbanization and rural electrification. A governance structure of 16 ministries and an M&E framework track progress against national priorities, SDGs, the African Union's Comprehensive Africa Agriculture Development Programme (CAADP) and NDCs. Ethiopia is sharing lessons regionally.

ALBANIA

IDENTIFYING STRATEGIC ENTRY POINTS STIMULATES CROSS-SECTOR GOVERNANCE

KEY SHIFT

Albania has long faced stark rural–urban disparities, with poor infrastructure and youth outmigration from rural areas. In 2021, the Ministry of Agriculture and Rural Development (MoARD) and partners began shifting from fragmented efforts to a systems-based model. They identified strategic entry points to connect food, economic and territorial development goals, aiming to address challenges through integrated, cross-sector approaches.

PRACTICAL ACTION

During the 2021 UN Food Systems Summit process, national dialogues helped identify agritourism as a key entry point (FAO, 2024d). Follow-up local dialogues brought together agritourism entrepreneurs, farmers, municipal leaders, microfinance institutions, culinary schools and extension services. These exchanges led to concrete actions, including youth upskilling in agrifood innovation, improved rural healthcare access and infrastructure upgrades.

ENABLERS

Applying systems thinking enabled sectors to co-design solutions that advanced social, environmental and economic priorities. Agritourism was framed as a connector between agriculture, food processing, tourism, culture and sustainability – reframing rural revitalization as part of an integrated agrifood system (Partalidou and De Matteis, 2024).

OUTCOMES

In 2023, MoARD created a dedicated Unit for Agritourism and Rural Tourism within its Trade Policies and Rural Development Sector. By 2025, it became an active governance mechanism, coordinating with the Ministry of Tourism and Environment on legislation such as the 2024 Tourism Law and Action Plan. This was backed by a EUR 250 million Investment Fund for Rural Development and the "Mountain Package", supporting agritourism, biodiversity and community-led innovation in rural and mountain areas.

See the general disclaimer on page ii for maps used on this page.

CENTRAL HIGHLANDS, **KENYA**

CONVENING SPACES FOR SYSTEMS THINKING HELPS NAVIGATE TENSIONS FOR SHARED SOLUTIONS

KEY SHIFT

The Central Highlands is Kenya's most densely populated and intensely cultivated region. It has faced persistent conflict over natural resources, driven by how competing demands for water, agriculture, urbanization, tourism and biodiversity are managed. In 2022, diverse communities joined the Central Highlands Ecoregion Foodscape (CHEF) programme. While biodiversity was the priority problem, the programme embraced interlinked goals – food production, trade and livelihoods – marking a shift from isolated objectives to shared visions.

PRACTICAL ACTION

In 2022, co-learning facilitators convened local governments, producers, NGOs, businesses, researchers, conservation groups and water user associations in a joint visioning process. Using backcasting, participants envisioned a desirable future, then worked backwards to identify actions, constraints and mitigation strategies (Remans *et al.*, 2024). The method was designed to make power dynamics explicit and incorporated measures to increase participation of youth, women, pastoralists and smallholder producers – groups historically left out of decision-making.

ENABLERS

Key enablers included skilled facilitators who served as neutral conveners, a shared willingness to take long-term risks, careful attention to power asymmetries and the integration of scientific and local knowledge. This enabled collaboration across divides and fostered solutions to complex, interdependent challenges.

OUTCOMES

The co-learning process strengthened understanding of landscape interconnections and surfaced key tensions. Nutrition emerged as a central link, guiding new entry points. Actions included installing water meters with revenues reinvested into local water initiatives, and scaling regenerative practices that improved soils, biodiversity, water efficiency and market access. A landscape innovation hub is now being established to sustain learning, adaptive action and shared leadership.

See the general disclaimer on page ii for maps used on this page.

SYSTEMS **KNOWLEDGE:** DATA AND EVIDENCE FOR SYSTEM CHANGE

Country experiences indicate that shifting to generating data and evidence designed to inform systems change involves:

- **Tracking, assessing and costing interrelated outcomes** and their trade-offs and co-benefits;
- **Mapping and analysing interconnections** to identify systemic vulnerabilities, bottlenecks and leverage points; and
- **Establishing platforms to co-create evidence** across diverse disciplines and the knowledge of people with lived experience.

Understanding the inherent characteristics of systems (BOX 5) indicates these shifts are priorities because:

- **Agrifood systems deliver multiple, interconnected outcomes.** Tracking and costing them together enables institutions to anticipate trade-offs, optimize across multiple goals and identify where progress is uneven. This supports more strategic decision-making and aligns actions with how agrifood systems actually function.
- **System outcomes result from interactions, not isolated factors.** Understanding these connections and who

FIGURE 5. THREE KEY SHIFTS TO SYSTEMS **KNOWLEDGE**

	SILOED APPROACH	SYSTEMS APPROACH	HOW TO IMPLEMENT*
▸ KEY SHIFT	Tracking, assessing and costing system outcomes separately without considering interlinkages	Tracking, assessing and costing different system outcomes together and assessing trade-offs and co-benefits	• Make Food Systems Dashboards • Conduct true cost accounting • Conduct *ex ante* modelling on multiple policy objectives • Conduct strategic foresight analysis
▸ KEY SHIFT	Generating evidence only on the immediate causes and drivers of problems	Identifying systemic vulnerabilities and leverage points by analysing interconnections and blockages	• Implement systems-based assessments • Conduct political economy analysis
▸ KEY SHIFT	Drawing only on top-down data and evidence from single disciplines	Co-creating knowledge from diverse disciplines and people with lived experience	• Develop co-creation platforms with researchers and practitioners • Conduct participatory modelling

* Illustrative examples from countries, not an exhaustive list of actions.
Source: Authors' own elaboration.

is involved helps diagnose underlying causes, systemic vulnerabilities and the political economy constraining effective action. It also highlights strategic entry points where focused interventions can trigger broader transformation and avoid implementation blockages.

- **No single discipline or source of knowledge can capture the full picture of a complex system.** Nor can top-down research alone understand how systems work or how changes in systems will be experienced in practice. Combining technical insights with perspectives from those who live and work within the system helps expose overlooked dynamics and produces more relevant, usable knowledge. Engaging diverse forms of people's knowledge in agrifood systems – including women, youth, consumers, small-scale farmers and Indigenous Peoples – is critical to addressing systemic issues effectively (FAO, 2025a).

Across countries, regions and cities, people and institutions are taking practical actions to put these shifts into practice. Some are developing **Food Systems Dashboards** to assess agrifood systems (e.g. Indonesia), inspired by the **Food Systems Countdown Initiative (FSCI)** and associated global monitoring framework (Schneider *et al*., 2023). The FSCI framework is being adapted by countries like Ethiopia and Madagascar to assess progress. Others are applying **true cost accounting** to capture comparable costs of different agrifood system outcomes (e.g. Switzerland) or using **modelling tools** to explore trade-offs and synergies of policy packages across multiple outcomes, combined with **political economy analysis** (e.g. Indonesia). **Strategic foresight** is also being used to explore risks and long-term options. FAO's Strategic Foresight programme maps dynamic relationships across agrifood and interrelated systems to identify transformation strategies away from undesirable futures (FAO, 2022a). FAO's Food Safety Foresight programme explores how trends and innovations interconnect with food safety, providing strategic guidance on emerging issues (FAO, 2022b).

Countries are increasingly recognizing the value of **systems-based assessments** that explore interconnections across systems to identify systemic weaknesses and strategic entry points for system-wide improvements. Countries have undertaken national agrifood systems assessments that identify broad levers for change (e.g. FAO, 2025c). Institutions responsible for specific subsystems are undertaking **subsystem assessments** – for example, for food safety systems, assessments of veterinary drug residues in the context of antimicrobial resistance (e.g.

Pakistan), and comprehensive food control system assessments supporting compliance with international standards and the operationalization of One Health undertaken in several African countries (FAO, 2019a). **Systems-based value chain analyses** have been conducted in numerous countries to identify how to enhance value chain performance across economic, social and environmental dimensions (FAO and UNIDO, 2024). At the subnational level, cities are conducting **urban agrifood system assessments** to "know" their agrifood systems, map food flows and strengthen urban–rural linkages (e.g. Colombo, Sri Lanka).

Another practical action, often at the territorial or local levels, is the development of **platforms to support the co-creation of knowledge**, such as farmer field schools at the territorial level (e.g. Burundi) (FAO, 2019b). Multi-actor agricultural innovation platforms (MAIPs) are another farmer-oriented platform that amalgamate knowledge and insights from researchers alongside the practical experience of farmers, including the Science and Technology Backyard (STB) model adopted in China (FAO, 2025d). In a range of different countries, researchers are engaging with practitioners in **participatory modelling**, bringing together diverse people and groups to co-create "causal loop diagrams" and identify leverage points, strategies and transformative pathways to address a range of priority problems (e.g. Waterlander *et al.*, 2021; Bustamante *et al.*, 2024; Nicholson and Monterosa, 2023).

Based on these country cases, the following indicators are initial suggestions of how to assess signs of progress towards the generation of systems knowledge and application to inform integrated and inclusive decision-making.

POTENTIAL INDICATORS OF PROGRESS: SYSTEMS **KNOWLEDGE**

- Multidisciplinary teams and people with lived experience inform policies at an effective science policy interface with sustained collaboration.
- Monitoring processes track progress against indicators of multiple agrifood system outcomes.
- Policy options are assessed before implementation to explore trade-offs, synergies and optimize outcomes across multiple objectives.
- Political economy analyses (e.g. power relationships, blockages, "winners and losers") have been conducted for key topics to inform governance and policy design.
- System-wide assessments and participatory modelling identify strategic entry points, leverage points, vulnerabilities, capacity gaps and bottlenecks.
- Strategic Foresight analysis is identifying emerging risks and opportunities from agrifood systems interlinkages.
- Platforms exist to co-create knowledge integrating scientific, lived experience and/or Indigenous knowledge to inform adaptive strategies.

INDONESIA

MODELLING TRADE-OFFS AND SYNERGIES ON POLICY OUTCOMES INFORMS DEVELOPMENT PLANNING

KEY SHIFT

Indonesia has long prioritized national food security, especially rice self-sufficiency. Under its Medium-Term Development Plans 2020–2024 and 2025–2029, the government set a broader vision for agrifood systems that includes environmental sustainability and healthier diets. To understand how to achieve multiple objectives simultaneously, the Ministry of National Development Planning (Bappenas) commissioned an integrated policy modelling exercise to assess synergies, trade-offs and the political feasibility of interventions (FAO, 2024e; Woolfrey *et al.*, 2024).

PRACTICAL ACTION

A consortium of research institutions piloted an innovative combination of the MIRAGRODE, GLOBIOM and computable general political economy (CGPE) models (FAO, 2024e). The simulations explored tensions across social, environmental and economic objectives. Expanding social safety nets showed co-benefits for reducing undernourishment and raising farm incomes but revealed trade-offs with forest and biodiversity protection. Conversely, conservation-focused policies risked worsening food insecurity. The stakeholder survey revealed that economic goals were often prioritized over social and environmental ones, exposing disconnects between analysis and political reality.

ENABLERS

Bappenas, as a coordinating ministry, had the mandate and systems thinking capabilities to lead integrated planning. Its long-term development role – beyond short-term policymaking – made it possible to explore future-oriented scenarios that balance competing goals.

OUTCOMES

The modelling made policy trade-offs visible and quantified. It helped drive a shift toward holistic agrifood systems planning. Next steps involve localizing the approach using data from the Indonesian Food System Dashboard (DSPI) to better align national strategies with local realities across more than 17 000 islands.

SWITZERLAND

TRUE COST ACCOUNTING CREATES TRANSPARENCY ABOUT COSTS ACROSS AGRIFOOD SYSTEM OUTCOMES

KEY SHIFT

Prior to 2024, Switzerland had comprehensive data on the economic, environmental, dietary and social dimensions of its agrifood systems. In 2025, this was enhanced with a study on hidden costs across all of these dimensions, allowing comparisons across agrifood outcomes. The initiative reflects Switzerland's progressive integration of systems thinking into its agrifood policy framework, aiming to align diverse goals through evidence-based decision-making.

PRACTICAL ACTION

In 2023, the Federal Office for Agriculture (FOAG), with FAO, commissioned the Research Institute of Organic Agriculture (FiBL) to conduct a true cost accounting (TCA) analysis (De Luca and Muller, 2025). TCA measures and values the hidden environmental, social, health and economic costs and benefits of agrifood systems (UNEP, cited in FAO, 2024a; FAO, 2023c). The study estimated CHF 32 billion in hidden costs in 2020, mainly from unhealthy diets, followed by biodiversity loss, GHG emissions and nitrogen pollution. Key interdependencies were identified, notably between nitrogen use and dietary health.

ENABLERS

In June 2022, the Swiss Federal Council published its *Report on Switzerland's Future Direction of Agricultural Policy*, outlining an integrated vision for resilient agricultural production aligned with environmental, nutritional and health goals. This holistic framing laid the groundwork for the TCA analysis, providing both the mandate and rationale to integrate datasets on diverse outcomes. Also reflecting this holistic shift, agrifood systems were included in Switzerland's updated nationally determined contributions in January 2025 and the updated Swiss Nutrition Strategy, released in April 2025, broadened its focus beyond health to include other sustainability dimensions.

OUTCOMES

The TCA led to a new level of transparency about the impact of the Swiss agrifood system. An inclusive consultation process enabled open discussion and debate about which outcomes to measure and how, bringing together actors from across sectors. The findings informed policy conversations and fostered shared understanding of interdependencies in agrifood systems (FAO, 2024a).

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PAKISTAN

CROSS-SECTORAL KNOWLEDGE STRENGTHENS CAPACITY TO MANAGE RESIDUES OF VETERINARY DRUGS IN FOODS

KEY SHIFT

In 2017, Pakistan launched its first National Action Plan on antimicrobial resistance (AMR), adopting a One Health approach (Government of Pakistan, 2017). This laid the foundation for system-wide efforts to address food safety aspects of AMR. During 2024–2025, Pakistan undertook a national assessment that moved beyond testing for veterinary drug residues in laboratories to a broader multisectoral analysis. This assessed system vulnerabilities across agencies and sectors, recognizing the interconnected nature of AMR risks.

PRACTICAL ACTION

In 2024, the Ministry of National Food Security and Research led a nationwide assessment using the Residues of Veterinary Drugs in Foods (RVDF) tool. The process brought together actors from agriculture, health, trade, academia and the private sector to examine the systemic context of veterinary drug residues. It revealed challenges such as informal drug markets, inconsistent regulations and weak enforcement – factors often overlooked in siloed assessments. Upgrading national laboratories was identified as a key entry point for reform.

ENABLERS

The shift was enabled by commitment across public institutions to share data and engage with people from different sectors. Technical support from partners helped facilitate joint analysis and dialogue, building systems knowledge across the network of participants.

OUTCOMES

The process led to greater institutional commitment to address drug residue risks through a broader public health and market access lens. The next steps include training for small-scale traders and informal drug sellers, national awareness campaigns, and the launch of a national residue monitoring plan, to be incorporated into Pakistan's next AMR strategy.

COLOMBO, SRI LANKA

MAPPING FOOD FLOWS FACILITATES SYSTEM THINKING FOR URBAN–RURAL CROSS-SECTORAL PLANNING

KEY SHIFT

Colombo's agrifood system faces overlapping challenges – large slum populations, climate-sensitive supply chains, inefficient infrastructure and high post-harvest losses. In 2019, city authorities recognized that siloed interventions could not adequately address rising food insecurity. They began mapping the full agrifood system – from production and processing to distribution and consumption – to understand urban–rural linkages and identify strategic entry points for change (FAO, RUAF and WLU, 2018).

PRACTICAL ACTION

Food flow mapping was used to analyse Colombo's agrifood system, revealing infrastructure inefficiencies, over-reliance on limited markets and poor cross-sector coordination. A convening process brought together local government agencies, research institutions and civil society to co-design solutions. Participants mapped flows, assessed risks and used scenario planning to inform decisions. The results helped identify key policy entry points, including diversifying supply channels and investing in infrastructure resilience.

ENABLERS

The shift was enabled by systems knowledge and engagement of multiple groups and sectors. Mapping and scenario tools helped reveal interconnected constraints and align institutions behind shared goals. Technical support from partners provided the tools and data needed for informed decision-making.

OUTCOMES

The initiative built capacity among government officials and researchers to apply systems thinking to agrifood planning. A comprehensive assessment report, including maps and scenarios, provided a shared evidence base. Its findings were integrated into Sri Lanka's National Agriculture Policy (2022) and National Policy on Climate Change (2023), both of which now formally recognize the importance of inter-ministerial coordination and systems-based urban–rural planning.

See the general disclaimer on page ii for maps used on this page.

SYSTEMS **GOVERNANCE**: JOINED-UP EFFORTS ACROSS SECTORS

Country experiences indicate that the practice of shifting from fragmented governance to joined-up efforts involves:

- **Establishing leadership mechanisms** that enable cross-sector decision-making and tackling shared challenges;
- **Conducting joint planning and design processes** with clearly defined roles and responsibilities for implementation that enable collective action; and
- **Strengthening inclusive governance arrangements** that balance power, help navigate conflict and ensure diverse voices are heard.

Understanding the inherent characteristics of systems (BOX 5) indicates that these shifts are priorities because:

- **Identifying and aligning policies and actions towards shared visions is complex in interconnected, dynamic systems.** Guiding change across agrifood system components, subsystems and outcomes towards a set of goals requires leadership. Distributed leadership is needed across sectors, levels and interrelated systems. Leadership mechanisms can harness knowledge and agency from across the system. Structured platforms and strong facilitation help,

FIGURE 6. THREE KEY SHIFTS TO SYSTEMS **GOVERNANCE**

	SILOED APPROACH	SYSTEMS APPROACH	HOW TO IMPLEMENT*
▸ KEY SHIFT	Shaping and making decisions on interlinked issues in isolation	Establishing leadership structures that facilitate decision-making and collective action across sectors	• Establish cross-government commissions or taskforces • Establish multistakeholder collaborations
▸ KEY SHIFT	Planning separately on issues that require joined-up efforts	Conducting joint planning and design processes with clear roles and responsibilities for implementation	• Joint planning for agrifood systems strategies
▸ KEY SHIFT	Limited or symbolic participation in decision-making of those directly involved or impacted	Building inclusive governance processes that balance power and navigate conflicts	• Develop broad coalitions • Support women-led groups • Include Indigenous Peoples • Integrate conflict management

* Illustrative examples from countries, not an exhaustive list of actions.
Source: Authors' own elaboration.

connect leaders, enabling them to make shared decisions address interconnected issues, foster collective action and monitor change.

- **Agrifood systems are made up of many interconnected components and decision-makers whose actions influence one another.** When plans, projects or funding proposals are developed in isolation, sectors may work at cross purposes, duplicate efforts or miss opportunities for synergy. It is hard to see all the interconnections and interests without all the relevant people and institutions involved. Engagement at the planning stage enables diverse disciplines and sectors to develop collective goals, design actions that reinforce one another, and clarify roles and responsibilities for sectoral implementation, thereby maximizing impact across agrifood systems.
- **Power dynamics are an inherent characteristic of agrifood systems.** Imbalances in power can block progress towards better outcomes. While taking action in agrifood systems may not be possible without creating a risk of trade-offs, inclusion of those affected by a problem or its solution in decision-making processes can help mitigate inequitable outcomes, rebalance entrenched power relations, surface competing interests and allow for joint reflection to manage conflict.

Across countries, regions and cities, people and institutions are taking practical actions to put these shifts into practice. These include **establishing cross-sector leadership mechanisms** to structure shared decision-making and gather cross-system knowledge. Examples include institutionalized cross-government bodies, advisory councils or commissions (e.g. Brazil, Cambodia, France, Viet Nam). Countries are also establishing **multistakeholder collaborations** to create structured spaces for agrifood system participants, civil society, private sector, and government to engage, helping align diverse interests and build shared understanding (UNEP, FAO and UNDP, 2023).

Counties are increasingly undertaking **joint planning processes** to bring together health, environment and economic sectors for integrated agrifood strategies (e.g. Mexico, Rwanda), while **broad coalitions** are being built to tackle power dynamics (e.g. Mexico). Further practical actions include supporting **women-led groups to enhance their voice and influence**, as in Andhra Pradesh (India), where women's self-help groups have been central to participatory governance (GIST Impact Report, 2023)

and **mandating Indigenous Peoples' inclusion in decision-making fora**. For example, in 2025, a Presidential decree in Colombia established self-governing authorities in Indigenous communities with public budgets and administrative power.

Another practical action is **embedding conflict management processes** in governance structures to help navigate tensions, address power imbalances and enable more inclusive, lasting results. To be effective, these processes need to recognize and address unequal capacities to participate, ensuring less powerful people and groups can voice their perspectives and influence decisions equally (UNEP, FAO and UNDP, 2023).

Drawing from these examples, the following indicators are suggestions for how to assess signs of progress towards more inclusive and coordinated governance structures and processes.

POTENTIAL INDICATORS OF PROGRESS: SYSTEMS **GOVERNANCE**

- Leadership structures exist that bring together multiple sectors in agrifood systems with a clearly defined role and responsibility, and proper resourcing.
- Distributed leadership practices – such as rotating chairpersons, shared facilitation or inter-ministerial task forces – support accountability and collective ownership.
- Processes and sufficient capacity exist to enable joint cross-sector planning for policies and projects.
- Roles and responsibilities for implementation by different sectors towards shared goals are identified, incentivized, owned and activated.
- Governance processes exist for dealing with competing priorities between different objectives, trade-offs, conflicts and conflicts of interest.
- Mechanisms are in place to ensure meaningful participation and influence by historically excluded groups – including women, youth, small-scale producers and Indigenous Peoples.

TABLE 4. COUNTRY EXAMPLES OF CROSS-SECTOR LEADERSHIP MECHANISMS IN AGRIFOOD SYSTEMS

COUNTRY	LEADERSHIP STRUCTURE (DATE ESTABLISHED)	STRUCTURE AND FUNCTION
BRAZIL	National System of Food and Nutrition Security (SISAN), (2006)	Coordination framework for food and nutrition security (FNS) operating through three bodies (national, state and municipal levels): (i) FNS Councils (CONSEAs) enable structured dialogue between government and civil society; (ii) intersectoral FNS chambers of different ministries coordinate policies and support state and municipal implementation; and (iii) FNS conferences, held every four years, where civil society and government jointly set priorities and policy directions, starting from the local level and feeding into national policymaking.
CAMBODIA	Council for Agricultural and Rural Development (CARD) (2008)	Formal government body, chaired by a senior minister, under the Office of the Council of Ministers responsible for coordinating, monitoring and advising on agrifood systems, food security and nutrition. Engages ministries, development partners, civil society and the private sector.
COSTA RICA	Technical Committee for the Monitoring of Costa Rica's National Pathway for Agrifood Systems Transformation (2024)	Committee under the Ministry of Agriculture and Livestock, with representatives from government, academia and civil society. Monitors implementation progress, identifies synergies and addresses bottlenecks in Costa Rica's national pathway.
FRANCE	Conseil national de l'alimentation (CNA) (1985)	Independent advisory body on national food policy under the Ministers for Agriculture, Health, Environment and Consumer Affairs. Composed of 66 government and external stakeholder members, with a dedicated secretariat.
UGANDA	National Food Systems Coordination Committee (NFSCC) (2022)	Coordinating body under the Office of the Prime Minister. Aligns agrifood systems initiatives with the National Development Plan. Includes 17 permanent public sector members and six rotating members from civil society, academia, private sector and farmer groups.
UNITED ARAB EMIRATES	Emirates Council for Food Security (ECFS) (2019)	Inter-ministerial council established by the cabinet of the United Arab Emirates, tasked with enhancing national food security through agrifood systems. Chaired by the Minister of Climate Change and Environment, it includes relevant federal entities and an advisory committee of experts from academia, private sector and civil society.
VIET NAM	Partnership Agreement for Transparent, Responsible and Sustainable Food Systems Transformation in Viet Nam (FST-Partnership) (2024)	Partnership body chaired by the Ministry of Agriculture and Rural Development and co-chaired by an international partner. Coordinates ministries, sectors and localities in the implementation of the national action plan for agrifood systems transformation.

Source: Authors' own elaboration.

RWANDA

JOINT PLANNING SUPPORTS INTEGRATION OF NUTRITION AND FURTHER OUTCOMES INTO AGRIFOOD STRATEGIES

KEY SHIFT

Between 2022 and 2024, Rwanda's Ministry of Agriculture and Animal Resources (MINAGRI) developed the fifth Strategic Plan for Agricultural Transformation (PSTA5). Aligned with the National Transformation Strategy (NST2), PSTA5 advances national goals including youth employment, economic transformation and private investment. Recognizing the interconnected challenges and opportunities across the agrifood system, its development marked a shift toward inclusive, systems-oriented planning.

PRACTICAL ACTION

The planning process was led by the Agricultural Sector Working Group (ASWG), co-chaired by MINAGRI and a rotating development partner. It brought together stakeholders from health, trade, infrastructure, environment, civil society, the private sector, and farmers' organizations – including youth and women's groups. Consultations were held across all provinces and districts, with technical experts supporting evidence generation and oversight for local community dialogues.

ENABLERS

This shift built on two decades of experience under the African Union's CAADP, which demonstrated that food security requires more than agricultural production. In 2023, Rwanda launched a Policy Learning Program with a module on agrifood systems policymaking, delivered to 30 officials from multiple ministries, supporting a more systemic approach to PSTA5 development (Ilie *et al.*, 2025). Existing governance structures provided the vehicle to lead the process.

OUTCOMES

Unlike PSTA4, which treated nutrition as a subcomponent, PSTA5 integrated nutrition across all strategic priorities (FAO, 2025e). It also addressed climate resilience, agroforestry, biodiversity, gender equality, youth employment, digital technologies and private sector engagement. The plan also proposed reallocating Rwanda's USD 5.1 billion agrifood budget from a production-heavy focus toward more balanced system-wide investment. As a next step, in 2025, there are plans to establish a formal leadership structure to coordinate responsibilities across ministries and drive collective implementation.

MEXICO

BUILDING COALITIONS REBALANCES POWER DYNAMICS IN DEVELOPING A LAW ON THE RIGHT TO FOOD

KEY SHIFT

Since the 1980s, Mexico has faced rising childhood obesity and diet-related noncommunicable diseases, largely due to increased consumption of ultraprocessed foods. In the 2010s, the government introduced public health measures such as front-of-pack labels and school nutrition standards. These faced strong industry resistance, highlighting the need for inclusive governance. In 2024, Mexico passed the *General Law on Adequate and Sustainable Food* (Government of Mexico, 2024) – the first of its kind – grounded in the right to food. The law emerged from inclusive governance processes that shifted power toward meaningful dialogue with those directly affected by agrifood system dynamics.

PRACTICAL ACTION

Coalitions led by the Secretary of Health, together with other government agencies, civil society, academia and the Parliamentary Front Against Hunger, played a key role in rebalancing power dynamics. These alliances were driven by a shared commitment to a rights-based approach to ensure food security and protect public health. A series of workshops created space for inclusive dialogue and helped shape the law's design.

ENABLERS

A turning point came with the creation of the Intersectoral Group on Health, Food, Environment and Competitiveness (GISAMAC) in 2019, a high-level coordination mechanism led by the Ministry of Health, bringing together agriculture, environment, welfare agencies and civil society. Alongside Mexico's National Development Plans 2019–2024 and 2025–2030, this provided the institutional and strategic foundation.

OUTCOMES

The law integrated existing measures into a systemic, rights-based framework that promotes agrobiodiversity, reduces food loss and waste, supports small-scale producers, and protects traditional Mexican cuisine and agroecological practices. It also established the National System for Food Sovereignty, Self-Sufficiency, and Nutritional Well-being (SINSAMAC), a legally mandated governance forum involving government, producers and civil society. Once secondary regulations are enacted, the role of SINSAMAC will be to guide agrifood systems transformation across the country.

See the general disclaimer on page ii for maps used on this page.

SYSTEMS **DOING**: IMPLEMENTING ACTIONS THAT HARNESS INTERCONNECTIONS

Country experiences indicate that shifting from implementing disconnected to integrated action involves:

- **Combining mutually reinforcing actions** to address interlinked causes of the priority problem;
- **Intentionally designing actions to deliver multiple system-wide benefits;** and
- **Actively managing and mitigating trade-offs.**

Understanding the inherent characteristics of systems (BOX 5) indicates these shifts are essential because:

- **Interconnectedness demands attention to interlinked causes and solutions across agrifood and interrelated systems.** Actions across different parts of systems must work together to address challenges. Single interventions are not sufficient to navigate this complexity, provide the right incentives or deliver lasting change. What have been termed "portfolios", "bundles" or "packages" of mutually complementary actions may be more complex to craft but have greater potential to reconfigure relationships for greater impact.
- **Agrifood systems inherently generate multiple outcomes, whether intended or not.** This reality can be harnessed by

FIGURE 7. THREE KEY SHIFTS TO SYSTEMS **DOING**

	SILOED APPROACH	SYSTEMS APPROACH	HOW TO IMPLEMENT*
▸ KEY SHIFT	Addressing a priority problem with single silver-bullet interventions	Combining mutually reinforcing actions for system-wide effects	• Create portfolios of actions to address interlinked barriers • Combine actions to address short-term needs and build longer-term resilience
▸ KEY SHIFT	Actions that consider only one objective, when synergies are possible	Implementing actions that deliver multiple connected benefits	• Re-allocate public budgets for food procurement towards achieving co-benefits
▸ KEY SHIFT	Taking actions that fly blind into trade-offs or deliberately ignore them	Actively managing and mitigating trade-offs with equity-focused innovations	• Provide livelihood support to address impacts of environmental or health regulations

* Illustrative examples from countries, not an exhaustive list of actions.
Source: Authors' own elaboration.

intentionally designing policies and programmes to create synergies and maximize co-benefits. Aligning interventions builds synergies, improves efficiency and supports more coherent strategies that make better use of limited resources.

- **Trade-offs are inevitable in interconnected systems, but they can be actively managed.** Addressing them transparently helps balance competing priorities. The goal of reducing inequalities is essential, as trade-offs often impact groups differently. Innovations play an essential role in challenging existing power structures. It is also crucial to understand how the costs of acting now can yield future benefits.

Across countries, regions and cities, people and institutions are taking practical actions to implement these shifts in various ways (see key shift tables throughout the document). Examples include **implementing portfolios of interlinked actions**, such as in agricultural development and humanitarian assistance to build longer-term resilience and improve fisheries (e.g. El Salvador, Afghanistan); **reallocating public budgets for food procurement to generate co-benefits** across nutrition, equity and sustainability (e.g. New York City, United States of America); and **providing livelihood support measures to navigate trade-offs** between economic, environmental and social goals in rice production and fisheries (e.g. Sierra Leone, the United Republic of Tanzania).

Drawing on these examples, the indicators below are initial suggestions for tracking signs of progress towards systems doing.

POTENTIAL INDICATORS OF PROGRESS: SYSTEMS **DOING**

- Priority problems are addressed through mutually reinforcing portfolios of actions targeting interconnected causes across agrifood systems and interrelated systems.
- Interventions are consciously crafted to deliver co-benefits (e.g. livelihoods, climate, nutrition) and implemented with embedded monitoring and learning.
- Institutions involved in implementation report improved coordination of timing, resources and goals, supported by adaptive management.
- Policies across ministries are explicitly designed to be coherent and aligned towards objectives, with coordinated implementation and joint monitoring frameworks.
- Monitoring tracks how resources advance multiple goals and guides adjustments to sustain or scale impact.
- Key trade-offs are addressed through combinations of policy instruments, intentionally designed policies, or adjustments in implementing existing actions.
- Participatory processes for identifying and managing trade-offs from an equity perspective are integrated into policy and programme cycles, and equity-focused innovations reduce negative impacts on marginalized groups.

EL SALVADOR

ADDRESSING INTERCONNECTED BARRIERS LAYS THE GROUND FOR LONGER-TERM ECONOMIC AND CLIMATE RESILIENCE

KEY SHIFT

Coffee production plays a vital role in El Salvador's economy, landscape and biodiversity. Grown in agroforestry systems alongside fruit and timber trees, coffee contributes to water regulation, soil fertility and carbon sequestration. In response to climate pressures and declining incentives, the Ministry of Agriculture and Livestock launched a five-year national programme in 2020 to restore coffee agroforestry systems and strengthen farmer resilience and incomes. Originally conceived as a seedling distribution initiative, the approach evolved into a coordinated package of mutually reinforcing actions designed to build a robust, long-term coffee subsystem.

PRACTICAL ACTION

Supported by a USD 45 million government-guaranteed loan from the Inter-American Development Bank (IDB), the programme targeted interlinked market failures through strengthening public goods and targeting support to smallholder farmers. The initial concern was lack of liquidity hindering farmer investment in adoption of new techniques and varieties needed for productivity and environmental sustainability. Addressing the barrier sustainably required filling data gaps on fertilization – building capacity of national soil testing labs – and ensuring genetic conformity of varieties by issuing seed certification protocols. A digitized monitoring system tackled lack of timely technical support. Strengthening agency addressed leadership and intergenerational barriers: women assumed leadership roles in 40 cooperatives and market associations, and 70 youth-led ventures were launched with financial grants and management training.

ENABLERS

The programme benefited from coordinated investments across the coffee system. IDB's ability to share experiences from other countries, continuous adaptation based on local insights, and strong collaboration among government bodies and research institutions enabled effective implementation.

OUTCOMES

The programme is expected to run through 2026 and has reached 7 000 farmers. A rigorous multi-dimensional impact evaluation is planned for 2025 to assess economic, environmental and social outcomes, laying the groundwork for more resilient agrifood systems.

AFGHANISTAN

MUTUALLY REINFORCING ACTIONS BUILD BRIDGES AT THE HUMANITARIAN–DEVELOPMENT NEXUS

KEY SHIFT

In 2022, almost 23 million people in Afghanistan faced acute food insecurity – 55 percent of the population (IPC, 2022). Driven by a long-term vision of a transformed agrifood system, FAO's emergency response shifted beyond agricultural input packages to a broader portfolio of mutually complementary actions aimed at building long-term resilience.

PRACTICAL ACTION

Activities began with the distribution of certified wheat seeds and fertilizer to more than 2.2 million farming households. Recognizing that subsidies alone would not solve food insecurity, FAO strengthened earlier efforts to build a private sector-led seed system, later expanding into vegetables to improve dietary diversity. To secure water amid drought, irrigation was rehabilitated, rainwater harvesting introduced and organic fertilizers promoted for sustainability. Farmer field schools trained communities in water conservation and other good practices. Women's roles were supported through poultry initiatives, with gender-sensitive approaches mainstreamed across all main programme areas.

ENABLERS

Implementation involved experimentation and rapid adjustment of interventions. Local knowledge helped tailor actions to context. Strong leadership established a long-term vision, building trust with funders and securing resources beyond typical 6–12-month emergency cycles. This ensured capacity to operate at scale in all the 34 provinces of Afghanistan.

OUTCOMES

By April 2025, the number of people facing acute food insecurity had declined to 12.6 million, projected to drop to 9.5 million by October 2025 (IPC, 2025). Recommendations for next steps include linking agriculture to nutrition, promoting climate-resilient practices, diversifying livelihoods, closing the national food production gap for staple foods and prioritizing women-headed households.

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NEW YORK CITY, UNITED STATES OF AMERICA

ALIGNING FOOD PROCUREMENT BUDGETS AND PROCESSES DELIVERS MULTIPLE CO-BENEFITS

KEY SHIFT

New York City serves over 219 million meals and snacks annually across public institutions such as schools, hospitals, correctional facilities, senior centres and shelters. In 2017, a review of food procurement practices revealed opportunities to generate broader benefits through public spending. This prompted a shift from a narrow focus on access to food to a systemic approach delivering nutritional, environmental and social co-benefits.

PRACTICAL ACTION

Through the Mayor's Office of Food Policy (MOFP), the city adopted the Good Food Purchasing (GFP) initiative, aligning its then USD 465 million procurement budget with six values: nutrition, environmental sustainability, local economies, valued workforce, animal welfare and equity. Contracts were restructured to favour plant-based, low-carbon foods; increase purchases from minority- and women-owned business enterprises (M/WBEs); and strengthen compliance with NYC Food Standards.

ENABLERS

To ensure the shift was delivering the intended co-benefits, in 2019 MOFP introduced tracking of real-time food sourcing data across city agencies, publishing this data annually to enhance transparency and accountability against the programme's core values. The initiative's success also stemmed from the MOFP's commitment to learning and adaptation, regularly convening discussions with community stakeholders to refine procurement strategies. Cross-agency coordination further enabled alignment with citywide food standards and sustainability targets, reinforcing a unified systems approach across departments.

OUTCOMES

Public procurement became a tool for systemic transformation, fostering coordination across city agencies. By 2022, New York City had reduced animal product purchases by 10 percent compared to 2019, cut food-related greenhouse gas emissions by 20 percent, tripled spending with M/WBEs and increased local sourcing by 24 percent. The programme continues to evolve. By embedding multiple values into procurement decisions, the MOFP acknowledged the environmental, economic and sociocultural trade-offs involved. It is now partnering with researchers to better understand the trade-offs involved in NYC's food policies within the city and across the wider region (CFPP, 2025).

SIERRA LEONE

BALANCING TRADE-OFFS IN CROP PRODUCTION SUPPORTS MORE SUSTAINABLE GROWTH AND INVESTMENT

KEY SHIFT

In 2023, Sierra Leone launched Feed Salone, its flagship agrifood systems strategy. The plan marked a shift from sectoral agricultural planning to a comprehensive approach focused on boosting domestic productivity while reducing environmental impacts, expanding nutrition programmes, fostering inclusion for women, youth and vulnerable groups, and enabling private sector engagement.

The government aims to leverage complementarities between these objectives through an integrated approach with political commitment signalled at the highest level through the President establishing and chairing an inter-ministerial Presidential Council that addresses cross-cutting issues affecting programme delivery, including trade-offs.

PRACTICAL ACTION

Concrete measures were implemented to manage trade-offs between agricultural productivity and environmental sustainability, and large-scale investment and equitable livelihoods. For example, soil suitability maps were used to guide agricultural expansion while protecting areas at risk of degradation or deforestation. In response to equity concerns around large-scale investment, the government introduced dedicated credit lines and matching grants for smallholder farmers.

ENABLERS

Presidential leadership and a clear vision catalysed action. The Council created a mechanism for joined-up decision-making across ministries. Feed Salone was designed through extensive national consultations, often led by the Minister of Agriculture and Food Security, with input from farmers and a wide range of stakeholders.

OUTCOMES

The integrated strategy helped unlock investment. The government increased agriculture's share of the national budget from 2 percent in 2023 to 7 percent in 2024. Over USD 1 billion in funding and technical support has been mobilized from international financial institutions and development partners. Dialogue is ongoing with global and regional private investors to catalyse further investment.

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UNITED REPUBLIC OF TANZANIA

MANAGING TRADE-OFFS BUILDS TRUST IN FISHERIES MANAGEMENT

KEY SHIFT

In 2015, the United Republic of Tanzania revised its fisheries policy to promote sustainable and inclusive development. However, overfishing, especially of Nile perch in Lake Victoria, persisted. Authorities shifted from single-species management to a broader view linking ecological, social, institutional and economic dimensions. Guided by the Ecosystem Approach to Fisheries (EAF), they began to address trade-offs more intentionally, aligning with international guidance and recognizing the interconnected drivers of fish stock depletion, community wellbeing and long-term sector resilience (FAO, 2012; FAO, 2021f).

PRACTICAL ACTIONS

In 2022, the Ministry of Livestock and Fisheries, in collaboration with development organizations and funders, began implementing the Fisheries Sector Master Plan (2021/22–2036/37). Authorities introduced seasonal and spatial closures in overfished areas. To reduce livelihood trade-offs, they supported aquaculture, beekeeping, seaweed farming, crab fattening, agriculture and created village community savings and loan associations. Gender Desks and the Tanzania Women Fish Workers Association were also established to support women across the fish value chain and promote more inclusive decision-making (FAO, 2024f).

ENABLERS

The shift was facilitated through the existence of Beach Management Units (BMUs) – community based governing structures in fishing villages originally mandated by the Tanzania Fisheries Act in 2003. BMU's coordinated implementation, mobilized community engagement, managed conflicts and generated contextual knowledge to inform and monitor plans and actions taken (FAO, 2021f; Nakamura *et al.*, 2023). Implementation was supported through collaboration between government, development organizations, research institutions, academia and financing agencies. System knowledge through research, assessments and continuous monitoring was key in identifying and addressing gaps for interventions.

OUTCOMES

Fisheries management in the United Republic of Tanzania remains a work in progress. Bringing in communities to work through trade-offs has strengthened trust needed for implementation and development of participatory integrated fisheries management plans. Next steps include operationalizing the national strategy and fisheries legislation and developing specific fisheries management plans.

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SYSTEMS **INVESTMENT**: RESOURCES DIRECTED TO LONG-TERM TRANSFORMATION

Country experiences indicate that shifting to long-term, flexible, system-wide resourcing involves:

- **Allocating budgets and investments to incentivize system-wide actions and the generation of co-benefits;**
- **Adopting flexible financing mechanisms** that enable adaptation over time; and
- **Committing to long-term, sustained investments** that support system-wide transformation.

Understanding the inherent characteristics of systems (BOX 5) indicates these shifts are essential because:

- **Aligning and interlinking actions to implement for co-benefits requires incentives.** "Systems doing" relies on deliberate motivation. When funding is fragmented, it disincentivizes the linking of actions and outcomes, failing to reflect the interconnected nature of agrifood systems. Resources can be intentionally allocated to incentivize aligned, interlinked and multipurpose actions, which in turn requires greater coordination in funding, financing and investment.

FIGURE 8. THREE KEY SHIFTS TO SYSTEMS **INVESTMENT**

	SILOED APPROACH	SYSTEMS APPROACH	HOW TO IMPLEMENT*
▸ KEY SHIFT	Uncoordinated funding that misses potential synergies	Funding that incentivizes system-wide actions and co-benefits	• Reallocate existing public procurement budgets • Allocate donor investments as coordinated portfolios • Repurpose agricultural subsidies
▸ KEY SHIFT	Financial mechanisms with little ability to adapt as learning emerge	Flexible financing mechanisms that enable adaptation	• Embed contingency funds and flexible budget lines into projects to redirect resources quickly
▸ KEY SHIFT	Brief funding cycles disconnected from long-term goals	Deploying long-term sustained investment for system-wide transformation	• Establish self-financing mechanisms from programme or business activities

* Illustrative examples from countries, not an exhaustive list of actions.
Source: Authors' own elaboration.

- **In a dynamic system, rigid funding mechanisms limit the capacity for adaptation.** Flexible financing enables institutions to respond to new insights, shifting needs and unexpected shocks. This adaptability is essential in complex agrifood systems, where disruption and innovation often occur. Over time, it fosters resilience by ensuring that funding supports timely, joined-up responses across interconnected components.
- **Systems transformation requires time and sustained engagement.** Short-term project funding inhibits actions that cumulatively build towards transformation. Multi-year, cross-sector investment plans provide the long-term support needed to build and strengthen relationships and enable adaptation as systems evolve. Embedding financing into how agrifood systems function is key to sustained, long-term change. Dedicated funding to promote access and ownership also ensures that historically excluded groups can participate meaningfully.

There are signs across countries, regions and municipalities that institutions are beginning to shift towards deploying longer-term, coordinated, flexible resources. For example, some are **reallocating public procurement budgets** to support multiple system agrifood system outcomes (e.g. New York City, United States of America). International financial institutions and donors are starting to **structure investments around coordinated portfolios of actions**, rather than funding isolated components (e.g. El Salvador, Morocco). Another strategy is to **embed self-financing into the way agrifood systems function** (e.g. through business operations) to reduce reliance on external support. For example, in the case of farmer field schools in Burundi, income generated through market activities is used to sustain the co-learning process.

More broadly, there are increasing calls for greater coordination in financing to shift "from a siloed approach to a more holistic perspective" (FAO, IFAD, UNICEF, WFP and WHO, 2024: xvii). A growing discussion is emerging around the practice of "systemic investing", which involves purposefully allocating financial capital to foster systems transformation (Daggers *et al.*, 2023). For public budgets, proposals are being made to reform agricultural producer support to incentivize balancing multiple

objectives and reduce health, socioeconomic and environmental costs (FAO, UNDP and UNEP, 2021; OECD, 2023; World Bank, 2023). A range of practical tools and instruments is being proposed to facilitate the flow of development finance towards agrifood systems transformation (Benni *et al.*, 2025). This includes flexible financing mechanisms to enable adaptation as opportunities emerge, sustainability-linked bonds and public funds to leverage private investment (blended finance). The private sector is also central to this discussion – food and agriculture companies and development finance institutions have the capacity to mobilize capital, drive innovation and influence supply chains, embedding financing into the way agrifood systems operate.

The following indicators are possible ways to consider how to assess if funding, financing and investment are becoming more supportive of long-term systems change.

POTENTIAL INDICATORS OF PROGRESS: SYSTEMS **INVESTMENT**

- Public funds for food procurement policies are oriented towards prioritizing multiple policy objectives, such as nutrition, environmental sustainability and equitable livelihoods and are influencing market behaviour.
- Public budgets allocated to agricultural subsidies are being repurposed to incentivize co-benefits and manage trade-offs.
- Domestic budgets and international funding are intentionally allocated to reinforce and incentivize coordination and interlinking across different policies and projects.
- Pooled or jointly managed funding streams support coordinated initiatives across multiple components of agrifood systems.
- Financing mechanisms allow flexible reallocation of funds in response to real-time learning, risks or opportunities.
- Timely adjustments are being made in funding allocations based on findings from ongoing monitoring and evaluation.
- Multi-year investment plans include clear public and/or private commitments to support long-term agrifood systems transformation.
- Mechanisms track investments toward system-wide outcomes, beyond sector-specific inputs or outputs.
- Marginalized groups have increased access to sustained funding, enabling active participation and ownership in agrifood system initiatives.

MOROCCO

RE-ALLOCATING INVESTMENTS ACROSS AGRIFOOD SYSTEM PORTFOLIOS FOSTERS MULTIPLE POLICY OBJECTIVES

KEY SHIFT

In 2021, Morocco began shifting from fragmented investments focused on agricultural production to a systems-based approach that addresses interconnected agrifood challenges. Stimulated by the UN Food Systems Summit (UNFSS) process, the government partnered with the World Bank and FAO to begin reallocating budgets in a way that incentivizes system-wide actions.

PRACTICAL ACTION

This shift translated into a structured investment portfolio, which dedicated funding allocations across multiple priorities: reducing food loss and waste, promoting healthy diets and improved nutrition, advancing the circular economy, fostering productive alliances between small producers and buyers, and strengthening inclusive agrifood systems governance.

ENABLERS

Key enablers included strong leadership from the UNFSS National Convenor, who championed cross-sectoral collaboration and trust-building among ministries. Two rounds of multistakeholder dialogue (held in 2021 and 2023), laid the groundwork for Morocco's first integrated food systems roadmap, which aligns the objectives of several national strategies under one umbrella, such as Generation Green 2020–2030, the National Nutrition Strategy, and the National Strategy for Waste Reduction and Valorisation. The establishment of the National Committee for Food Systems Transformation (CNTSA) in 2024 institutionalized a distributed governance model, bringing together four core ministries and a broad ecosystem of stakeholders.

OUTCOMES

This coordinated approach has strengthened inter-ministerial relationships, fostered synergies and catalysed more impactful funding. Notably, the World Bank's new investment portfolio now spans all roadmap priorities with the intent to address multiple policy objectives across environmental sustainability, economic prosperity and public health, marking a departure from siloed budget allocations. Morocco's experience illustrates how systems thinking, a vision for transformation and inclusive governance changed how investment decisions are made.

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SYSTEMS **LEARNING**: CONTINUOUS LEARNING AND ADAPTATION

Country experiences indicate that the practice of shifting to continuous co-learning and adaptation involves:

- **Embedding ongoing monitoring, evaluation and learning (MEL) frameworks for systems-level change;**
- **Jointly experimenting and adapting based on real-time learning and emerging insights;** and
- **Promoting collective peer-to-peer learning,** enabling participants to share insights and build agency for change.

Understanding the inherent characteristics of systems (BOX 5) indicates these shifts are priorities because:

- **Monitoring and evaluation that focus only on outcomes miss how systems are evolving over time.** Embedding monitoring and evaluation into policies, programmes and projects – and orienting them towards indicators of systems change as well as outcomes – enables institutions to track signs of progress, learn, adjust course and pursue continuous improvement.
- **Pre-set plans struggle in dynamic, unpredictable systems.** Experimentation is essential when the impact

FIGURE 9. THREE KEY SHIFTS TO SYSTEMS **LEARNING**

	SILOED APPROACH	SYSTEMS APPROACH	HOW TO IMPLEMENT*
▸ KEY SHIFT	Monitoring and evaluation that focus only on outcomes	Embedding monitoring, evaluation and learning of systems-level change	• Integrate system-based monitoring, evaluation and learning processes • Apply systems-based evaluation tools
▸ KEY SHIFT	Pre-designed policies, projects and practices with no testing	Experimenting together and adapting based on real-time learning and emerging insights	• Implement and learn from prototypes and pilots
▸ KEY SHIFT	Learning reliant only on one-way, top-down approaches	Promoting learning that enables shared insights and builds agency to act	• Foster collective learning platforms between peers • Facilitate city-to-city exchange • Host on-site learning experiences • Hold community consultations

* Illustrative examples from countries, not an exhaustive list of actions.
Source: Authors' own elaboration.

of actions is difficult to anticipate. It helps test what works, refine what does not, and spark innovation – allowing people and institutions to learn, adapt and improve actions in real time.

- **Sharing experiences builds agency to navigate complexity, address common challenges and accelerate steps forward.** Systems change requires shared insights built on diverse experiences of overcoming challenges, not just one-way instructions. Peer learning can spark innovation and support more effective action.

Across countries, regions and cities, people and institutions are taking practical actions to implement these shifts, including **implementing systems monitoring, evaluation and learning** to understand how systems are shifting (e.g. Rosario, Argentina). Institutions are **implementing and learning from prototypes and pilots to inform programs at scale**, testing solutions in real-world conditions (Hill, 2022). In parallel, efforts to **foster peer-to-peer collective learning platforms** help practitioners and policymakers share experiences and co-create solutions through city-city exchange (e.g. Brazil) and farmer field schools (e.g. Burundi). "Learning journeys" in real contexts, learning from exemplary place-based initiatives and storytelling as a method of co-learning can inspire ways forward (e.g. WUR, 2025).

Based on these country cases, the indicators below are initial suggestions for how to assess if systems learning practices are being embedded across policy making and practice.

POTENTIAL INDICATORS OF PROGRESS: SYSTEMS **LEARNING**

- Monitoring, evaluation and learning frameworks are embedded across projects, institutions and policies.
- Indicators of systems change have been identified and used to track system-wide progress and provide real-time insights for decision-making.
- Prototyping initiatives and pilots are being implemented and systematically used to generate learning to refine follow-on initiatives or policies.
- Peer-learning platforms support shared reflection, knowledge exchange, more effective responses to common challenges and continuous improvement.
- Outputs from learning – such as revised strategies, good practices, shared tools or new insights – actively inform decision-making and implementation.
- Institutions demonstrate adaptive capacity by regularly using insights from "learning by doing" to adjust strategies, policies, programmes and budgets.

BRAZIL

CO-LEARNING ACROSS CITIES FACILITATES THE DEVELOPMENT OF INTEGRATED FOOD POLICIES

KEY SHIFT

In 2021, municipal officials concerned with food security in small- and medium-sized cities in Brazil shifted from learning alone to learning together about the complex agrifood systems issues they faced, and capacity sharing on how to develop systems-based municipal food policies.

PRACTICAL ACTION

This shift was enabled by the creation of the Laboratory on Urban Food Policies (LUPPA), a co-learning platform launched by Comida do Amanhã Institute and ICLEI South America. Prompted by the temporary dismantling of SISAN, LUPPA supports officials and civil society in developing collaborative food policies. By 2025, it included 59 cities. Learning activities include in-person labs, city visits, webinars and mentoring. Tools like a diagnostic matrix and the Projeto Âncora (Anchor Project) build capacity for systems thinking, helping cities identify system bottlenecks and craft integrated food strategies with a systemic view (Comida do Amanhã, 2023).

ENABLERS

The learning platform took inspiration from global efforts to share learning between cities, notably the Milan Urban Food Policy Pact. Activities are continuously shaped by participant feedback, enabling them to adapt to need and offering added value for time-pressed public servants.

OUTCOMES

LUPPA has strengthened inclusive governance by fostering dialogue between civil society and municipal officials, revitalizing food policy councils and enabling intersectoral collaboration. It has helped cities with diverse political leadership co-create food strategies, build trust and engage in joint planning. LUPPA is recognized as an inspiring network by the national Feeding the Cities (Alimentes Cidades) programme. Launched in 2023 and led by the Ministry of Social Development, the programme builds on LUPPA's methodology in cities over 300 000 inhabitants to implement federal food policies locally.

ROSARIO, **ARGENTINA**

SYSTEM-BASED EVALUATION OF AGROECOLOGICAL TRANSITIONS REVEALS BENEFITS OF INTERLINKED ACTIONS

KEY SHIFT

In the late 1990s, the Rosario Metropolitan Area – a major centre for agribusiness – faced growing threats from urban expansion and soybean monoculture, which limited land availability for peri-urban farming and undermined the livelihoods of small-scale farmers. In response, starting in the early 2000s, the municipality sought to strengthen the resilience and sustainability of local agriculture by promoting agroecology through innovative public policies and programs. To further advance this strategy, the municipality shifted from traditional monitoring towards systems-based evaluation to understand how agroecological transitions affect the social, economic and environmental dimensions of sustainability – beyond agricultural productivity alone.

PRACTICAL ACTION

In 2021, in partnership with international agencies and local academic institutions, the city applied the Tool for Agroecology Performance Evaluation (TAPE) (FAO, 2019c; Mottet *et al.*, 2020). The tool is designed to measure multiple outcomes, like income, soil health and women's empowerment, while also including indicators to track systems transformation. TAPE was used to assess 60 farms across five districts to examine agroecological practices, pesticide use and type of farming system (Lucantoni *et al.*, 2022). The process followed TAPE's four-step methodology, including a participatory workshop allowing participants to jointly reflect on findings and interpret system-level trends and dynamics.

ENABLERS

The implementation was driven by strong local engagement and institutional support, reflecting widespread concerns about the sustainability of industrial agriculture. TAPE's integrated design enabled the translation of systems change concepts and principles as established in the 10 elements of agroecology, into practical indicators (FAO, 2018b; Barrios *et al.*, 2020).

OUTCOMES

The systems-based evaluation revealed how agroecological transitions create interconnected benefits, leading local authorities to design new interventions that build on these linkages. The process fostered dialogue and transparency by sharing results with participants and involving them in their interpretation, which built trust, encouraged reflection and deepened engagement.

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BURUNDI

EXPANDING PEER LEARNING IN FARMER FIELD SCHOOLS ENABLES COLLECTIVE ACTION

KEY SHIFT

In 2017, farmer field schools (FFS) in Burundi expanded from small peer learning groups into a territorial model that linked clusters of schools across three provinces (Gitega, Muramvya and Mwaro). The shift enabled farmers to learn from each other and act collectively to address fundamental issues underpinning food insecurity and malnutrition, moving from fragmented efforts on individual farm plots to collective action.

PRACTICAL ACTION

Three to four FFS groups were linked into cooperatives that collaborated with local government structures like watershed management aommittees and provincial platforms under the Ministries of Agriculture and Environment. Training cycles in the FFS were extended to enable more in-depth learning. Drawing on farmer knowledge, each cluster conducted a joint diagnostic to identify shared challenges and how to address them. The FFS focus evolved from productivity to systemic issues notably watershed management, nutrition, biodiversity enhancement and market linkages. Specific crop value chains were selected to develop market linkages.

ENABLERS

The FFS expansion was made possible with funding from the Global Environment Facility. The Government of Burundi created an enabling environment by embedding the FFS model in agricultural governance through a new *Strategy for the Harmonized Implementation of the FFS* (Republique du Burundi, 2025). Data monitoring tools were also put in place to measure baseline data on multiple outcomes, including biodiversity, GHG emissions, income generation and dietary diversity.

OUTCOMES

The model enabled larger-scale collective action. Cooperatives coordinated crop sales, boosting returns by over 200 percent in late 2024. Between 2020 and 2023, diet diversity in participating households rose from 18 to 82 percent. Nearly 20 million seedlings were planted to restore 31 724 hectares of land, and bamboo reinforced 300 km of riverbanks. Agricultural programmes are now implemented through the FFS. The model has been scaled across provinces and now has a self-financing mechanism as a share of agricultural sales are used to finance the FFS.

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5. NAVIGATING THE PROCESS OF IMPLEMENTING A SYSTEMS APPROACH

Experience shows that shifting from siloed ways of working to a systems approach does not happen automatically. It requires deliberate effort to bridge silos in decision-making and delivery in agrifood systems (BOX 3). Entrenched habits, disincentives and institutional structures hinder the adoption of a systems approach (Leeuwis *et al.*, 2021). More integrated efforts take time, resources, specific skills and the capacity to embrace uncertainty. Obstacles to a systems approach are not necessarily due to unwillingness, although this may be the case when vested interests are involved, but because of existing incentives, procedures and expectations.

Experience shows that moving forward with a systems approach requires sustained commitment to tackle three core challenges associated with adopting a systems approach:

- **Time and cost** – Changing how people and institutions work together involves more than revising policies. It requires ongoing engagement and flexibility to adopt new ways of working. Developing shared understanding, building trust and aligning efforts across parts of the system takes time. It requires investment in human capacity to build and make connections. While a systems approach can enable agrifood systems transformation, in the short term, the process may be slower and more complex. Knowledge of the costs and benefits and how this varies between contexts and problems is weak. Moreover, political cycles prioritize short-term,

visible results, creating strong disincentives to invest for the long term. If costs are borne in the short term with benefits only accrued beyond political cycles, the shift will take strong financial and non-financial incentives, political commitment and strong leadership.

- **Leadership and people skills** – Implementing a systems approach is not only a technical process but a human one. It depends on leaders who can connect others, navigate differences in perspective and facilitate a shared vision as part of systems leadership (Dreier *et al.*, 2019). This includes understanding power dynamics, surfacing competing interests, navigating conflict, building trust and supporting inclusive decision-making. These leadership skills are often undervalued or lacking in organizations. Tools, financing mechanisms and learning systems are needed to support ongoing improvement.

A systems approach involves making decisions with an understanding of their ripple effects across an interconnected landscape.

- **Accepting risks and uncertainty –** Taking a systems approach often means facing risks and entering unfamiliar territory. Uncertainty is inherent, making it essential to create enabling conditions that can sustain efforts over time. Systems change unfolds in non-linear ways, and results may emerge differently or more slowly than expected. Effective leadership requires managing both expectations and risks, especially when immediate results are not visible. Surprises are common when intervening in complex systems, and a lack of early clarity can weaken confidence in the approach if people are unprepared. Building trust includes helping others understand that a systems approach takes time and may follow unpredictable paths. New approaches for monitoring, evaluation and learning with indicators of progress are needed to help manage uncertainty.

Key questions remain about how to build the incentives, skills and capacities needed to advance the shift to a systems approach at scale. Reducing the risks associated with adopting a systems approach, generating evidence on its costs and benefits, and developing clear indicators of progress would support wider adoption and establish it as an engine for agrifood systems transformation.

6. CONCLUSIONS

The examples in this report show that shifting to a systems approach is not a theoretical ideal but a real and achievable change already being put into practice in many places and institutions. Each example highlights a specific shift in practice, such as understanding system connections, engaging people differently or using inclusive knowledge to guide decisions. These changes often begin within one element of a systems approach – for example, knowledge or governance – but they rarely stay isolated (FIGURE 3). One shift tends to enable another. Systems assessments can support more joined-up governance. Building capacity for systems thinking can motivate joint planning. A more strategic investment approach is often facilitated by systems governance structures. Systems learning enables adaptation to facilitate systems doing.

A systems approach is not a one-time fix. It is a continuous journey of adopting new ways of thinking, acting and working together, step by step. There is no single blueprint. The approach evolves through experience and adaptation. It is less about doing things "right" and more about doing them "better." All of the examples of on-the-ground experience illustrated here are partial – but they show that steps are being made to identify, make and modify relationships in agrifood systems. Progress often begins with small, deliberate shifts – reframing a problem, convening new groups or changing how decisions are made. By embracing the inherent characteristics of systems and working

through key relationships via strategic entry points toward a shared vision, change can begin to coalesce across subsystems to enable broader agrifood systems transformation.

No single institution or individual can achieve this transformation alone. Governments play a central role by fostering an enabling policy environment. Development partners, philanthropic foundations and multilateral agencies contribute finance, technical expertise and platforms for knowledge exchange. The private sector brings innovation, investment and influence across value chains. Through strategic partnerships, businesses can align viable models with goals for climate, nature and reducing inequalities. Unlocking the agency, experience and knowledge of local communities, women, youth, Indigenous Peoples and small-scale producers is essential. Recognizing their roles not only promotes inclusion but also strengthens the legitimacy and impact of interventions and provides lessons for systems change.

The six elements of a systems approach offer a practical framework to guide this transformation.

The six elements of a systems approach offer a practical framework to guide this transformation. Used flexibly and in combination as steps on a journey, they help policymakers and practitioners identify where to start, what to strengthen and how to connect efforts for greater impact. Applied together, these elements can unlock the transformative potential of agrifood systems to deliver food security for all through better production, nutrition and health, inclusive economic growth and livelihoods and environmental sustainability, leaving no one behind.

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TRANSFORMING FOOD AND AGRICULTURE THROUGH A SYSTEMS APPROACH

A GUIDE TO CONNECTING SILOS, LINKING ACTIONS AND DELIVERING LASTING CHANGE

In a world where hunger, environmental degradation and inequality remain deeply intertwined, business-as-usual is no longer an option. This groundbreaking report from the Food and Agriculture Organization of the United Nations offers a bold, practical path forward: a systems approach to agrifood transformation. Grounded in systems science and enriched by real-world case studies, this guide outlines six core elements for systemic change – spanning thinking, governance, investment, learning, action and knowledge. With concrete examples from countries across the globe, it shows how working in a more connected way can unlock co-benefits across health, sustainability, equity and economic growth. Whether designing policies, projects, or funding proposals, this publication equips decision-makers with the tools to rethink how agrifood systems function, from farm to fork and beyond. It supports practitioners and policymakers alike to move from fragmentation to coherence, from short-term fixes to long-term transformation.

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