Food and Agriculture Organization
of the United Nations

Food Security and Sustainability Transformation

Science-based Evidence in support of Sustainable Solutions

Corinna Hawkes
Director, Food Systems and Food Safety Division, FAO

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Food security exists when all people, at all times, have physical and economic access to **sufficient, safe and nutritious food** to meet their dietary needs and food preferences for an active and healthy life.

Rome Declaration on World Food Security
World Food Summit Action Plan, 1996

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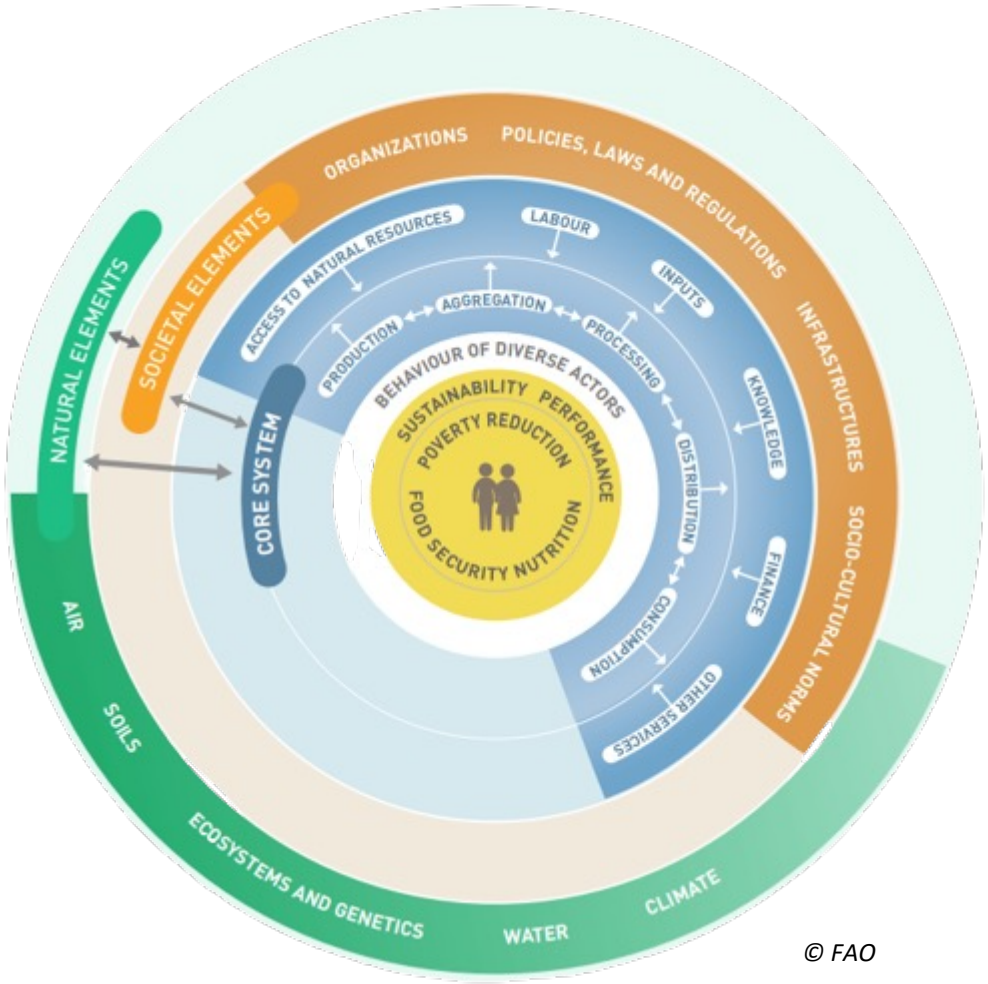
A **sustainable agrifood system** is a agrifood system that delivers **food security for all** in such a way that the economic, social and environmental bases to generate food security **for future generations are not compromised**.

United Nations Secretary General's
High-Level Taskforce on Food and Nutrition Security
Advisory Note on "All food systems are sustainable", 2015



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Yet the history of policy and practice to achieve food security through sufficient staple food production and trade is littered with **unintended consequences** for environment, society, health – leading to an unsustainable, unhealthy, unequal agrifood system with inadequate resilience.

Loss of biodiversity, soils, water

Climate change

Micronutrient deficiency

Obesity

Poverty and undernutrition

Gender inequality

For **SUSTAINABLE** solutions, science-based evidence must help states and stakeholders assess **TRADE-OFFS** and **SYNERGIES** of *policy and practice* for food security

Old siloed thinking

Science to enhance production

FOR NOW

Solutions focused on

- disproportionate focus on production
- reducing food insecurity and malnutrition through increasing the supply of staple foods
- solutions implemented by ministries, agencies and entities involved in agriculture

New systems thinking

Science to inform decisions to minimize trade-offs and maximize synergies

FOR NOW AND FUTURE GENERATIONS

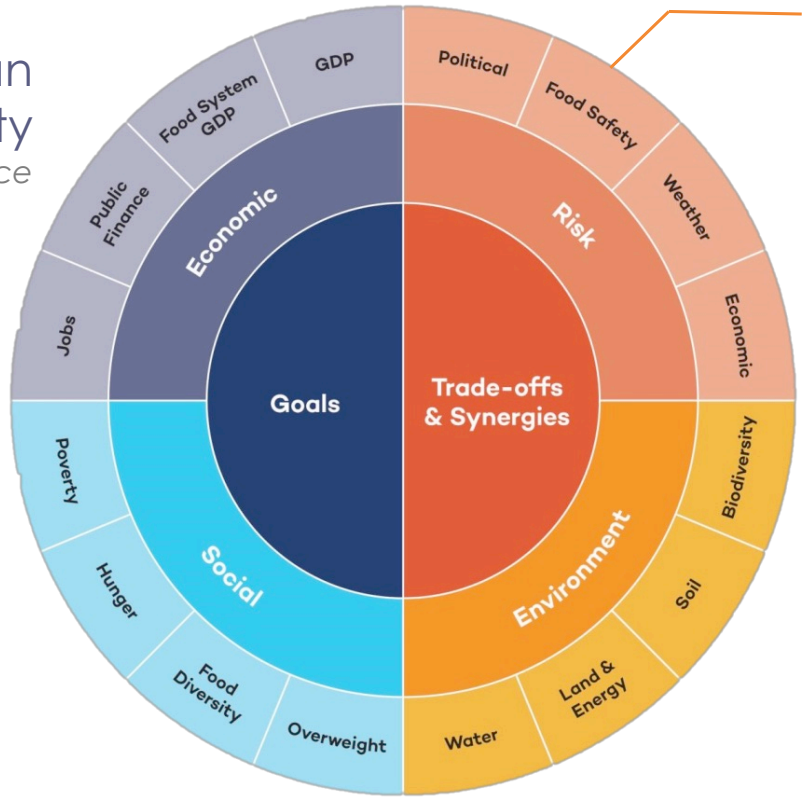
Package of solutions focused on

- optimizing gains for food security and other goals simultaneously (e.g. nutrition, food safety, climate change, water, gender equity, poverty reduction)
- cross-ministerial and cross-sector implementation

Science and social science methods to assess potential for tradeoffs and synergies of different policies

Food system as an economic activity
Impacts on jobs and finance

Impacts on human life
Impacts on inequalities and health



Extended concept:
One Health with zoonotic disease

Assessing systemic risk
Impacts on resilience

Nature and climate
Impacts on the planet and the biosphere

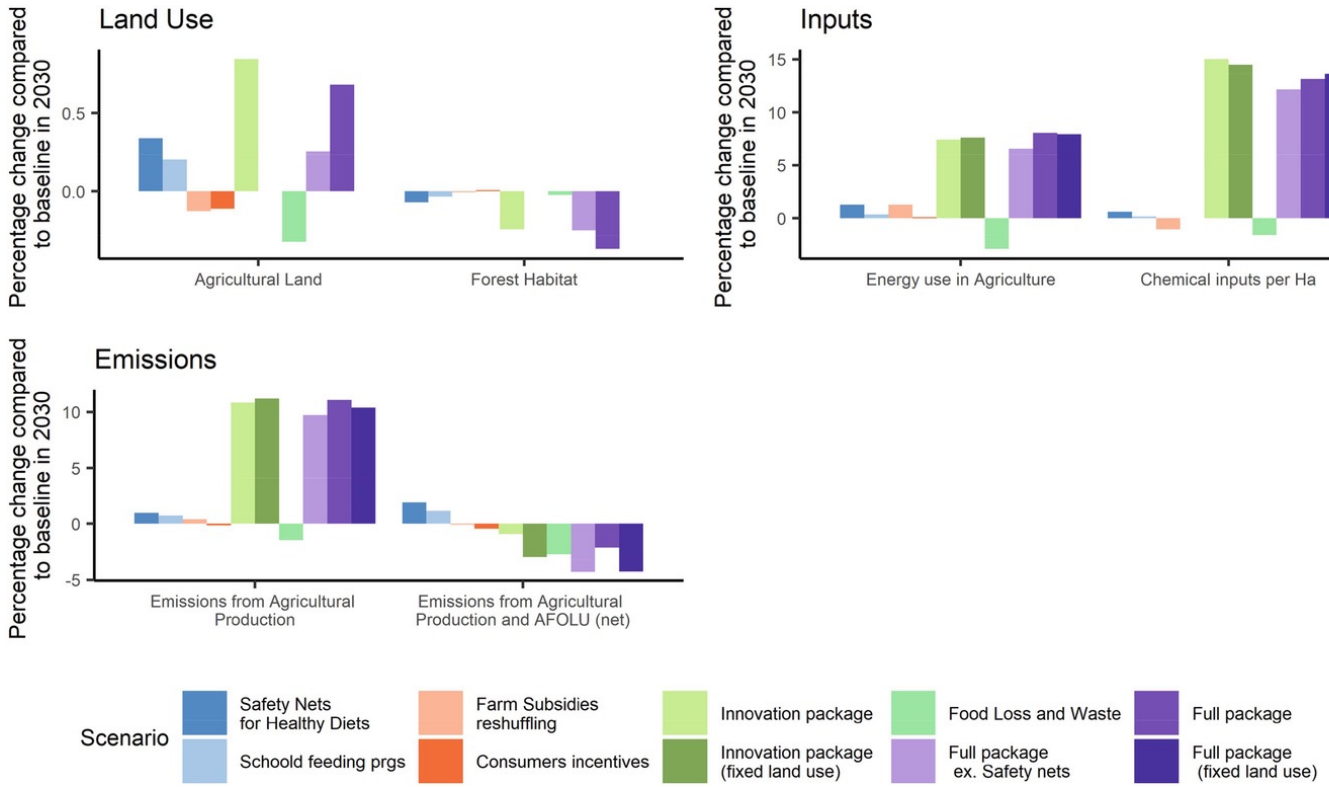
TRADE-OFF: where a gain for one objective results in a loss for another.

SYNERGIES = simultaneous benefits for different aspects of food system sustainability (social, health, environmental, economic).

(Franks, 2019)

Source: Laborde and Torero, 2023

Example 1. Generalized Equilibrium Modelling to assess environmental tradeoffs incurred by different policy options & identify issues for future analysis of SDG2 and 1.5 degrees goal



Source: Laborde and Torero, 2023

Example 2: True Cost Accounting to make evidence-based policy decisions for different contexts

True Cost Accounting (TCA) is a way of identifying the real costs of a specific product or service. TCA calculates not only the direct costs like raw materials and labour, but also the effects on the natural and social environment and health (TCA Accelerator).

	Examples of policy design questions	TCA support
1	How to ensure food security and livelihoods of smallholder farmers (in the short and long term) in a context of urbanization?	Identify externalities (e.g. food security, poverty) to inform choice of potential levers
2	How to improve animal welfare while keeping a healthy diet accessible to all?	Scenario analysis of different farming systems to identify and quantify externalities (e.g. effects on animal welfare, water use, food security)

(Source: van Veen & de Adelhart Toorop. 2022)

Example 3: Stakeholder-centered methods: perceived impacts of different policy options on agrifood system sustainability, Nakuru, Kenya

			Current maize support	Standard KS-1758	PGS certification	Public procurement	Seed support
Sustainability Nakuru's food system	Economic	Agricultural GDP	-0.1	0.0	0.4	0.5	0.6
		Poverty*	-0.1	0.1	0.4	0.5	0.6
	Social	Undernourishment*	0.3	0.1	0.4	0.6	0.5
		Undernutrition	-0.2	0.2	0.4	0.4	0.6
		Social equity	-0.1	-0.1	0.4	0.4	0.5
	Environmental	Adaptation	-0.4	-0.1	0.6	0.5	0.6
		Soil quality	-0.5	0.3	0.6	0.5	0.6

Note. Numeric scale of -1 (high negative impact) to 1 (high positive impact). Colour scale of -0.7 (red) to 0.7 (green).

*These indicators were deemed most important by interviewees

Identified large consensus on the need for higher availability and accessibility of quality seed to meet food security and multiple goals.

Source: D'Alessandro et al, 2021

Example 4: Review of different sources provides evidence on elements to consider when designing policies

Agricultural extension services can be designed to bring synergies for crop yields, diversification, sustainable practices, higher-quality diet, higher incomes, gender equality, *if consciously crafted to address gender inequality on the farm and in the household and to benefit environmental sustainability*+

Investing in mobile phone ownership, especially by women. brings synergies for better information for farmers, greater productivity, collective action to access nutritious foods, improved diet diversity *but manage risk of unhealthy food advertising for children*++

+Duveskog et al, 2011; Du et al, 2018; Emeana et al, 2019; Luqman et al, 2018; van de et al Berg, 2020; Waddington etal, 2014`; ++Cole & Fernando, 2016; Keino, 2021; Parlasca et al., 2020; Sekabira & Qaim, 2017 *in* cited Hawkes et al, 2022; and Trubwasser and Hawkes, 2022

For sustainable solutions, we must advance science- and *systems*- based evidence to help states and stakeholders assess trade-offs and synergies to provide solutions for food security which consider sustainability in all its dimensions

Thank you

Corinna Hawkes

Director, Food Systems and Food Safety Division, FAO

Corinna.Hawkes@fao.org